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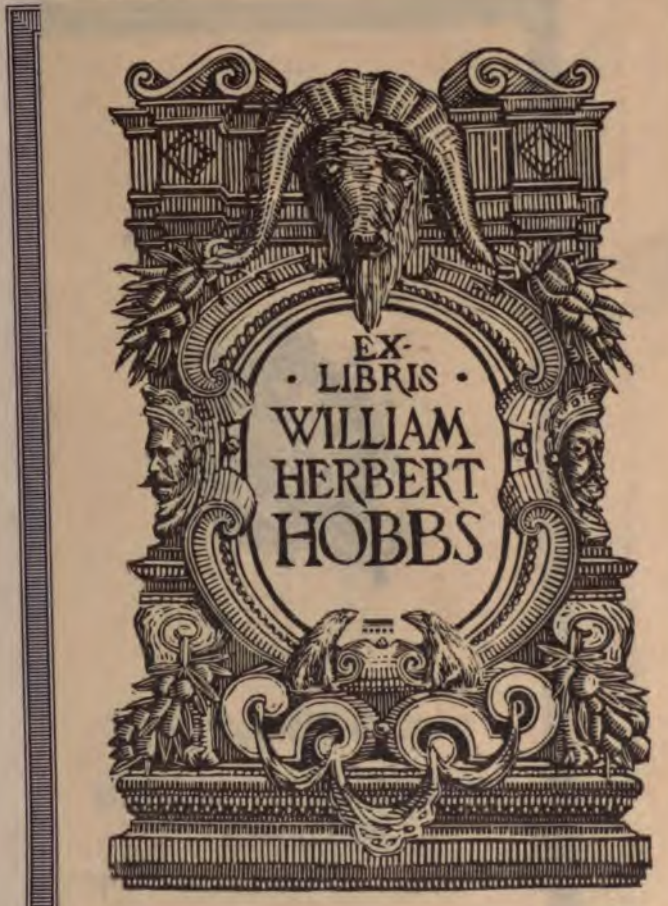
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From a painting by Albert Operti

LOST ON THE ICE-CAP

ISSUED UNDER THE AUSPICES OF
THE ARCTIC CLUB

THE WHITE WORLD

LIFE AND ADVENTURES WITHIN
THE ARCTIC CIRCLE PORTRAYED
BY FAMOUS LIVING EXPLORERS

Collected and Arranged for The Arctic Club
By RUDOLF KERSTING

NEW YORK
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1902

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TO THE
MEMBERS OF THE ARCTIC CLUB
NOW IN THE FIELD

PREFACE

There have been many books written on the subject of Arctic Exploration, chiefly historical works. But, in many respects, we believe "The White World" will be found by its readers to be something unique in Polar literature. Twenty-two famous living explorers have given their personal experiences, and have described what interested them most in the Far North, that great region of silence and mystery. The articles are, so to speak, human documents, in which are embodied all the pathos, all the humor, all the tragedy of the expeditions, which, with extraordinary courage and amidst unparalleled sufferings, have attempted to reach the North Pole. It is the universal testimony of all who have been there, that the great glittering waste of ice and snow possesses a peculiar and indescribable fascination. In the belief that the same fascination may exist for the reader of these experiences, as well as the real actor in them, this book has been compiled and is confidently offered to the public with a full belief in its value and its entertaining qualities.

Acknowledgment is made to Albert Operti for the use of original paintings and drawings, to A. P. Rogers and G. W. Picknell for drawings, and to Hon. J. D. Dewell, Prof. L. C. Stone, Rev. C. B. Carpenter, C. F. Wyckoff, and F. B. Wright for photographs furnished.

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AN ARCTIC RESCUE

REAR-ADMIRAL
WINFIELD SCOTT SCHLEY, U. S. N.

Winfield Scott Schley, Rear-Admiral U. S. N., was born near Frederick, Maryland, 1839; graduated Annapolis, 1860. In 1884 he was put in command of the Relief Expedition to find and rescue Lieutenant Greely and his party of over a score of men, who had been for three years in the Polar sea. At Cape Sabine Admiral Schley found Greely and six survivors of the party. For this rescue he was awarded a gold watch and thanks of the legislature of his native state, and a gold medal from the Humane Society of Massachusetts.

AN ARCTIC RESCUE

By Rear Admiral WINFIELD SCOTT SCHLEY, U. S. N.

THE FASCINATION of the Arctic regions, that great white world, with its dazzling glitter of ice and snow, is indescribable and well-nigh inexplicable. And yet that this fascination exists to an extraordinary degree is indisputable. No one who has ever been there, either as an explorer or a rescuer, but has longed, with all the keen desire of a lover to see his absent sweetheart, to return once more.

Many *have* returned, in fact the great majority, and those who have been, from force of circumstances, unable to do so, have constantly regretted this inability. All hardships, all privations, are forgotten. Only the pleasurable incidents

are remembered. And one longs once again to experience the thrill of expectation, the hope for and innate conviction of, success, which has beaten high in the heart of every Arctic explorer.

Is it the quest of the hitherto unattainable which possesses this potent attraction, this more than ordinary magnetic quality? It is possible. We all of us have known in our lives the keen longing for that which was just beyond our reach. There are few greater truths taught than that which is presented to us by the fable of Tantalus.

If the first Polar explorer had successfully accomplished his purpose and discovered the North Pole, would there have been any further expeditions? This, in my opinion, is more than doubtful. What reason would there be to visit it again? There are no commercial, no social possibilities in that great frozen North, nor, from its climatic conditions, can there ever be.

And this brings us the ever-persistent question, which demands an answer in regard to so many of the endeavors and enterprises of humanity—*Cui bono?* What is the use of it all? I have no desire to appear pessimistic, nor would I dare, without supreme egotism, to answer the questions I am putting. But these thoughts appeal to me strongly, as they have to many others. Has all the suffering undergone, all the loss of life involved, all the expenditure of money made, been worth the while? Would the knowledge of the exact position of the North Pole be a boon to humanity? What real and vital difference does it make whether Greenland is an island or not?

Even if these questions were answered authoritatively in the negative, that would not detract from the splendid aims, the marvellous endurance and the glorious heroism which have ever been displayed in an eminent degree by Arctic explorers. Failures, or comparative failures, seem to have little or no effect, but only to stimulate to new efforts. In spite of all, the search for the North Pole still goes on, and probably will go on indefinitely. Peary, for instance, an indefatigable explorer, has made expedition after expedition. Among his other achievements are the following:

First—The rounding of the northern limit of the Green-

REAR ADMIRAL WINFIELD SCOTT SCHLEY, U. S. N.

land archipelago, the most northerly known land in the world, probably the most northerly land.

Second—The highest latitude yet obtained in the Western hemisphere (83 degrees, 50 north).

Third—The determination of the origin of the so-called Paleocrystic ice (floe berg).

Lieutenant Peary has declared: "I am after the Pole, because it *is* the Pole; because it has a value as a test of intelligence, persistence, endurance, determined will, and perhaps courage, qualities characteristic of the highest type of manhood; because I am confident that it can be reached, and because I regard it as a great prize which it is peculiarly fit and appropriate that an American should win."

Mr. Evelyn Baldwin, at the head of undoubtedly the most superbly equipped expedition that ever started for the North Pole, has said, echoing, in a manner, the words of Peary:

"I do not want to see any but an American win the honor of the discovery of the North Pole, when so many of our brave countrymen have sacrificed their lives in the effort to attain it. I think America is great enough and progressive enough to have that distinction."

These two quotations are made particularly to emphasize my previous statement as to the enthusiasm of Arctic explorers, an enthusiasm which knows no bounds. The magnificent equipment of the more modern expeditions would have seemed little short of miraculous in the days of Greely. But science has advanced in all directions with gigantic strides in the last decade or two, and has made possible what seemed impossible when Greely set out on his ill-fated expedition. Then, too, experience, dearly bought as it has been, has taught a great deal. What to take to the North, and, what is even more important, what *not* to take, has been learned, and utilized.

And now to revert to the real object of this article, my personal experience in the rescue of Greely.

It is now some eighteen years since I was appointed commander of the fleet sent to the Far North to attempt to find the survivors of the Lady Franklin Bay Expedition, or as it was better known to the general public, the Greely

Expedition—if, indeed, there were any survivors, which at that time was a matter of the gravest doubt.

And yet, after all this long space of time, when I remember those days, and am called upon to put my experience into words, the memory of it all sets my pulses throbbing again, and my heart swells once more, as it did then, at the sense of responsibility imposed upon me and my associates. Who, save those daring and valiant spirits that were my companions on that memorable expedition, can understand, or even faintly appreciate, the hopes and fears, the alternate fits of elation and depression (the latter bravely encountered and overcome) which it was our lot to meet with?

To go back to those days, which were of vast import to all intimately concerned, no words can depict the excitement throughout the country at the time, on the subject of a new rescue expedition, and the anxiety prevalent as to the fate of Greely and his companions. Nevertheless, there were many who felt that to attempt a further rescue would be a useless expenditure of life and money, and would result in the verdict of " a lost cause."

It will be remembered that the Greely Expedition, to give it its popular title, set out for the North in the summer of 1881. The work of the expedition was to be threefold: First, exploration; second, the collection of specimens; and third, the observations called for by the International Polar Conference, held a short time before. The members of the expedition comprised twenty-five persons, including two Eskimos with Lieutenant Greely in command.

The instructions given were that a stay of two years was to be made at Lady Franklin Bay, and it was promised that a vessel should be sent to the station both in 1882 and 1883. These vessels, it was stated, were to bring " supplies for and such additions to the present party as are deemed needful." If these vessels failed to reach Greely, caches were to be established at designated points. Greely's party embarked at St. John's on the Proteus in July, and left for Lady Franklin Bay.

This was the beginning of an extremely exciting story, full of the most dangerous undertakings, successful achievements and unparalleled sufferings. It was destined to arouse the most intense interest and sympathy all over the

world, culminating only in the rescue and bringing back of the few survivors.

In the beginning, the enterprise was wonderfully successful. The Proteus reached the offing of Lady Franklin Bay without a check of any sort, and after disembarking the members of the expedition in August, she returned to St. John's. This first success, however, led to very false impressions. It was thought, and perhaps not unnaturally, that the station could be reached easily and without danger. The element of extraordinary good luck was not taken into account, and it was forgotten that previous voyages had been accomplished only with great risk and after encountering untold difficulties.

Two expeditions, as had been promised, had been sent out for the relief of Greely, one in 1882 and one in 1883. But neither, beyond the storing of provisions and clothing, had met with any remarkable success. In fact, the latter of the two was disastrous; the chief ship, the Proteus, which originally carried the exploring party to the North, being caught and sunk in an ice floe. The whole country, in consequence, was in a ferment, and indeed the interest excited throughout the world was phenomenal. Something further must be done for Greely and his companions, and that without delay. This was the general consensus of opinion.

But, after a careful examination of expert testimony, the Secretaries of the Army and Navy decided that it would be folly to send out another expedition at that time of year. In fact, it would have been worse than folly. It would have been disastrous in the extreme, and those engaged in the relief would undoubtedly have found themselves in as bad straits as Greely. Preparations, however, went forward with all due despatch to put affairs into operation the following spring.

About the middle of February I was appointed commander of the expedition. The appointment was made thus early, as it was the purpose of the Navy Department to connect one man with the enterprise, and to give him ample time and opportunity to perfect his plans. There was to be no possibility of casting responsibility upon the Bureaus, because they forgot this or that detail. It was

to be one man's business to call for everything that was needed, and to see that he got it.

The Thetis and the Bear were purchased at Dundee for the expedition. The English Government had generously offered the Alert to the Government of the United States, an offer which was gladly and thankfully accepted.

I remember vividly the extreme care with which the officers and men were selected. Every applicant was examined by a medical board, under instructions from the Surgeon General, prescribing a standard of physique necessary to withstand the exposures and hardships of the Arctic. Many were rejected.

Especial attention was paid to the victualling of the ships, this being a matter of the most vital importance. A frequent change of diet, as had been found from previous Arctic experiences, was essential. Tea and chocolate were the chief stimulants. It is an odd fact, and one of considerable interest, that in the Arctic regions, the use of coffee has injurious effects on many constitutions. Tea seems to be the best stimulant. But there are times, particularly after severe exposure, when the internal warmth can be communicated only by the use of hot spirits.

The most careful inspection was also given to the clothing, which was made at the New York Navy Yard, the officers and the men being fitted as they joined. Care had been taken to see that on board each vessel, there should be at least one officer who had had more or less Arctic experience.

Our equipment was the best that pains or money could obtain at that time. But, naturally, it was not comparable with that of the later Peary and Wellman expeditions, and especially with that of the superb Baldwin-Ziegler Expedition. These were provided with all sorts of aids and facilities which were not dreamed of in our day.

To return to our own expedition. The fitting out was by no means the only thing done to facilitate the objects in view. The Navy Department had the most cordial support and interest of the Secretary of War, and the two Secretaries had many consultations on the various points relating to the expedition. It was thought wise to take subsidiary measures which might result beneficially. Re-

quests were made that the owners of sealing and whaling vessels should instruct their captains to be on the lookout for signs of Greely's party, as there was a bare possibility that they might have drifted on an ice-floe to the southward. Assurances were given that any service rendered would be substantially recognized by the Government.

Later, Congress went even further than this, and directed the Secretary of Navy to offer a reward of $25,000 for the rescue of Greely or the discovery of his fate. His fate! What was it to be? And what was his present condition, and that of his comrades? Of course, all ideas in this regard were purely problematical. And yet what eager discussions, fraught with the most intense interest, took place between myself and my colleagues at the time!

It must be remembered in this connection that little encouragement was to be obtained from either the newspapers or the public in general. The failures were too fresh in people's minds to permit much hope of the new expedition. And yet it was generally realized and acknowledged that the Government was bound in duty to continue in the endeavor to relieve Greely, while at the same time it was feared, and these fears were freely expressed, that the expedition would be fruitless, and possibly, if not probably, would have a fatal termination.

This prevalent feeling, however, did not have any material effect upon the officers of the expedition. In all our discussions we were never willing to admit the possibility that a general disaster had taken place, and all had perished. We had no apprehension that catastrophe would come to the new relief expedition itself, for we knew too well the vast precautions which had been taken to prevent such an occurrence. But we did not believe that we were to glide on to success, without encountering many hardships and obstacles.

Few of us knew much about ice navigation, save what we had read of it, but we realized that this was a serious undertaking to which everybody concerned must devote his best efforts. It is a duty as well as a pleasure to chronicle that each person connected with the expedition, whether officer or man, felt that the object of this voyage was something far and beyond the ordinary; and an earnestness

of purpose was inspired which could not have been called forth by any expedition which had simply exploring for its purpose. All were determined to spare no pains, to incur any exposure, to assume any required task, and to be unremitting in watching for and seizing upon opportunities to advance, be it much or little, on the journey toward Greely and his party.

Everything was now in readiness. The Bear set out from New York the 24th of April, the Thetis the 1st of May, and the Alert the 15th of May. On all sides were given hearty expressions of the best wishes. The Secretary of the Navy voiced the sentiments of the whole country when he telegraphed:

"I wish you and all your comrades good health, good courage, and good luck. Goodbye."

At last the expedition was started in earnest.

Shall we be too late or shall we be in time? This was the burning question of the hour, a question which only Divine Providence could answer.

It is unnecessary here to describe in detail our journey to the North. But there are some statements and incidents that may prove interesting.

As has been said, there were but few of us who knew much about Arctic navigation. But we had been warned against placing too much reliance on the subject of experience, as applied to Arctic affairs. It is a fact that, in the whole history of Arctic expeditions, renewed voyages under the same commander have led to failures rather than to successes. This was notably the case in the many expeditions of Franklin, Parry, Barentz, Hudson, Hall, Kane, McClure, and Back. Their failure to attain their aims was probably due in some measure to a too rigid following of what they had learned from experience, and had therefore laid down as rules. I am quite well aware that this is a refutation of the old and generally true maxim, "Experientia docet," but I am also convinced that what I have stated is correct, so far as voyages in the Polar regions are concerned.

Another thing may be more or less surprising. In many instances, we found our charts to be of little or no help. In fact, on more than one occasion, our ships steamed over places which on the chart were marked as land.

The greatest care was taken of the provisions. A supply for sixty days, consisting of pemmican, beef, pork, tea, sugar, hard biscuit, salt and pepper, as well as alcohol, stoves, pots, pans, and two boxes of ammunition for the fowling pieces and rifles, all carefully marked, were stowed on deck beside the boats for which they were intended. All this was regularly inspected every day to be sure, that, if needed, nothing should be found to be spoiled. In this connection, it should be said that it was recognized from the beginning that, if Lieutenant Greely and his party were ever found, they would probably be in a destitute condition. Therefore, rations were carefully preserved exclusively for them.

The " crow's nest," just as soon as we entered the regions of ice, proved to be of inestimable assistance, and it was put into frequent use. The crow's nest is a heavy barrel, with the bottom fitted with a heavy hinge. This is attached to the foremast or mainmast by stout iron bands, fitted tightly about the mast, and is big enough to hold a man standing upright. There is a seat in it, but, when in the ice pack, there is little or no chance to sit down. Encircling the top is an iron rod, which makes a rest for the telescope. At an elevation of 120 or 130 feet, it gives a very broad lookout, say a range of twelve or fifteen miles in clear weather. An immense deal can be seen from here which could not be seen from the deck, and the captain, to direct intelligently the movements of his ship, is forced to remain here the greater part of his time. An elaborate system of signals connecting both with engine room and with helmsman is arranged, which makes it as easy to direct the ship from the crow's nest as from the bridge.

Wind and tide are naturally the two things which are watched most closely. For, upon an accurate knowledge of these, depends the ability to seize opportunities to advance.

There are certain indications which are of the utmost importance, namely, " water blinks " and " ice blinks." The water blink is dark clouds or spots on the horizon. These are caused by the mists which gather over open spaces of water, and always mean that an advance can be made. They are, therefore, eagerly looked for. On the contrary,

the ice blink is distinguished by spans or bands of light just above the horizon. These are the result of the reflection of an ice pack, and forebode much trouble ahead. The crow's nest is certainly a wonderful help and instructor to any commander of an Arctic expedition.

Torpedoes, to blow up the ice, were on the whole found rather disappointing. Their action was chiefly local, and no absolute reliance could be placed upon them. We carried explosives both of gunpowder and of gun-cotton. The former was found to be by far the more efficacious. On one occasion, however, it must be said that torpedoes proved to be of great service. This was when the Thetis was off Cape Athol, attempting to gain the open water of Wolstenholme Sound. In ramming her way through the ice, she found herself stuck fast in a wedge. She could move neither forward nor backward. The pressure of the ice was not severe, but it simply would not yield. Torpedoes of both gunpowder and gun-cotton were placed ahead and on both sides of the ship, about ten or twelve yards away. The explosion broke up the jam and permitted the ship to continue on her way through the ice pack.

Our dogs were of great advantage to us, indeed indispensable. We had taken eighteen Labrador dogs on board at St. John's. In addition to these, at Godhavn we purchased from the governor a team of seven trained Eskimo dogs. The Labrador dog is as a rule much more satisfactory and tractable than the Greenland one. He is a water dog and can swim, while the other must be carried from floe to floe. All the dogs have enormous appetites, but the Eskimo refuses to work after eating, while the Labrador dog is ready to buckle to at any time. They are all extremely savage, being more like wolves than dogs. If a man slips and falls upon the ice, they will leap upon him at once.

Among the Eskimo dogs, there is always a king; that is the one who, after repeated fights, has proved the strongest; and when his kingship is once established, all the pack yield to him and give him the most abject obedience. A growl is his signal, and woe to him who does not at once respond to it.

We had one peculiar specimen of a dog that we obtained

From the original painting by Albert Operti, in possession of United States Government

RESCUE OF LIEUTENANT GREELY

at Saunders Island. He was a very handsome animal, but of an unusually surly disposition. He would have nothing to do with the other dogs, and would not eat the same food that was given to them. Any kindly attention shown him was resented, but he never dared to bite. A dog that would not eat or fight was an anomaly. He seemed to be in a torpid condition. The only time that he aroused himself proved fatal to him. In attempting to walk on the main rail, he fell overboard, and was drowned.

Some mention should certainly be made of the whalers, who joined us in the early part of our quest. There was a large number of them in the beginning, but none remained to the end. Both officers and men were fine fellows, of superb physique and of bright, cheery, and genial natures. Their broad Scotch accent also had its attraction. They were generous in their rivalry, and always ready to lend a helping hand. They were not as well equipped as the relief ships, and their one advantage was their experience, if indeed this was an advantage. As I have previously stated, it is a debatable question whether the importance of experience on such an expedition as we were engaged upon may not be greatly overestimated.

The life of these whalers is an interesting one. They begin their annual cruise in January or February. The sealing captain takes the place of the whaling captain, who remains on board, but, so to speak, as a passenger. A tremendous number of seals is captured, the vessels being loaded down with them. After the middle of April, when the taking of young seals is forbidden by law, the ships return to St. John's, discharge the sealing captain, and prepare for the whaling cruise. It is their code of honor that the stronger must help the weaker, and this has never been known to be violated. Any captain who would abandon another in the ice would probably be discharged, and certainly would receive the execrations of his countrymen. A story is told that one captain who abandoned his consort to her fate drowned himself, when in sight of the home port, rather than meet the stormy reception which he knew was in store for him.

While the whalers were with us, we were initiated into the mysteries of a " Mollie." When the whalers are com-

pelled to remain motionless for some days in the ice, it is the custom for the captains to gather together on board one or another of the ships, and hold a sort of symposium, discussing the prospects of the season's catch. These assemblages are known as " Mollies." A bucket is hoisted at the fore-royal masthead as a signal of what is to take place. The meetings are most decidedly of a convivial nature, and, during the conversation, large quantities of Scotch whiskey and beer are consumed.

Once or twice the whalers, notably the Arctic and the Wolf, through clever manœuvring and fortunate circumstances, got to the front, and this was more or less annoying to the crews of the relief ships. For we were resolved that the whalers must not come in first. Finally, however, feeling that there was too much at stake in the summer's catch of fish to follow what was at best only problematical, the whalers turned back to the southward.

They bade us a cordial farewell, and most heartily wished us Godspeed. I shall never forget the warm grasp of Captain Fairweather's hand, as he said in his mellow Scotch accents:

" Gude bye, Captain. We may live without fesh, but those poor fellows up there must have breed. God bless you! It's no use for us to go further."

The Thetis and the Bear continued on their way. We encountered many surprises, succeeding in pushing onward when we expected failure, and being checked where we had been confident of advancing. In many cases, we were forced to come to a standstill, for it would have been suicidal to attempt to go on. On more occasions than one we received assistance from the Eskimos, whom we found to be always obliging and ready to furnish us with any information in their power. Further and further we pushed on slowly northward. We found caches here and there, and cairns were easily discoverable.

At Saunders Island there were perhaps fifty Eskimos who came off in their sleds to the ship, but they could furnish us with no information as to the party we were in search of. We gave them pork and bread, as well as broken oars and odd pieces of wood with which to mend their kayaks. The latter they seemed to crave especially, together with nails

and bits of metal. Still, nothing in the way of food came amiss to them. They would devour anything that was in any sense of the word edible, no matter whether it was cooked or raw.

From a painting by Albert Operti

CAPE SABINE

Onward we went to Cape Parry, Northumberland, Cape Alexander, McGary Island, and Littleton Island. We had many encounters with the ice, but no mishap of any importance overtook us. Off Cape York, the Bear had parted her consort, and, therefore, on board the Thetis, we had now two sources of anxiety.

It was very apparent that Greely had not reached Littleton Island. It was possible that he had remained at Lady Franklin Bay, but it was probable that he had gone to the south. This naturally we could determine in no manner. The other cause of anxiety was soon removed, for the Bear, to our great delight, came steaming up and joined us just before we had decided to leave Littleton Island.

It was now determined to run over to Cape Sabine, examine the cairns there, establish a cache of four thousand rations, and then immediately push on still further to the north. We left a final record for Captain Coffin of the

Alert on McGary Island, and proceeded to Payer Island. Our passage was, fortunately, comparatively clear of ice, and we had little or no difficulty in making our way. Payer Harbor is an indentation on the coast, which is in part enclosed by Brevoort, Stallknecht, and Payer Islands. Brevoort Island is the largest of these, about two miles south of Cape Sabine. The harbor was frozen over, and we made fast to the northern edge of the ice. Exploration parties, four in number, were at once sent out, to examine, at one and the same time, all the depots in the neighborhood.

After this examination had been satisfactorily accomplished, it was our intention to push on immediately into the Kane Sea. We scarcely imagined that anything of importance would be discovered by the exploring parties, and those who remained on board ship were therefore engaged in active preparations for the onward journey. The wind was very high and was roaring with might and main.

Suddenly, above all the turmoil, was heard the sound of cheering. At first we could not tell from what quarter the sound proceeded. Another cheer came. This time it sounded nearer and louder. All work was suspended; all were eager, breathless with expectation as to what the next moment might bring forth. What did this cheering portend? Our ears were tingling, our lips apart with our quick breathing, our hearts aflame. Oh, God grant that it meant good news was the fervent, though unspoken, prayer of us all!

Then a signal came. Ah, with what wildly throbbing hearts we read it! It was from Ensign Harlow on Stallknecht Island.

"Have found Greely's records. Send five men."

The excitement! What words can depict it? And it increased at every moment.

Before Harlow's request could be complied with, a man was seen running across the ice. This was Yewell, who told us, with panting breath, that a message from Greely had been found in the cairn on Brevoort Island. Yewell screamed out to the officers on deck, as he waved the papers he carried, that Greely's party was at Cape Sabine and all well.

Instantly everything was in commotion. Three long whistle blasts from the Thetis summoned back all those who had gone forth on the searching tours. It was determined at once to proceed with all despatch to the Cape.

First, however, the papers discovered were carefully gone over, and, to our dismay, horror, even, we found that the latest date borne by any of them was October 21, 1883, and that at that time but forty days' complete rations were left for the entire party to exist upon! The conclusion, terrible as it was, was inevitable. The whole party, or the vast majority of them, must have perished, while waiting, watching, and praying for the relief which had not reached them. The papers told a marvellous story of how Lockwood and Brainard had reached the "Farthest North." But somehow, at that moment, we cared but little about what had been accomplished. Our one desire was to reach those brave fellows and bring them relief from the untold sufferings they must be undergoing.

A cutter, with Colwell in command, was directed to go to the site of a cache indicated in the reports of Greely. The ships were to follow.

The cutter went on to the northward, but, before it had disappeared, I boarded the Bear, and soon the ship was under way, following the cutter around the Cape. The rest were to come after in the Thetis, which was to pick up those of the exploring parties who had not yet returned. The course which the cutter and the ships were to make was about six miles. It was a most fortunate matter that a southerly wind had driven the ice off shore into the Kane Sea, thus leaving an open passage for the vessels.

There are moments in our lives which are never forgotten, and this was one of them in mine. How vividly it all comes back to me, all the anxiety, all the forebodings, and yet with hope behind it all, hope which was perhaps predominant. I stood on the bow of the Bear gazing forward with eager, expectant eyes. The cutter was ploughing its way forward just ahead of us. Ah, what would be the end? That it was near I felt, I knew.

At times I was afraid of what we might be about to encounter, especially when I thought of the papers we had

just recovered. A chill would run through my veins, which was by no means the result of the cold of the atmosphere. It was a chill of apprehension.

What! Only forty days' rations left, and that was eight months ago! What unspeakable agony of mind and body, what untold sufferings must have been undergone since! My heart ached as I pictured it. The ship seemed to crawl. Moments appeared to be hours then. The anxiety, coupled with dread, to know the truth, was torture. Still, there was some inward voice which told me, in unmistakable accents, that we were not to be too late. This buoyed me up through all the weary watching and waiting. I knew instinctively, standing there, looking with strained eyes over the frozen expanse before us, that our quest was not to be fruitless.

As in a mirage, those poor, suffering fellows came up before me, and I prayed, as I have never prayed before or since, that we might be in time. I am sure to-day, as I revert back, that the good God heard that prayer.

It was late in the evening, and a storm was raging when Colwell arrived at his aimed-for point, but it was still daylight, although dull. Finally the boat reached the shore, keen eyes watching for any sign of human life, but nothing could be discovered. Then, as a point was rounded, all hearts for a moment seemed to stand still.

On the top of the ridge, some fifty or sixty yards upward, could plainly be distinguished the figure of a man. The coxswain snatched up his boat-hook, with a flag attached to it, and waved it wildly.

The man caught up a signal flag, and responded.

Then slowly and painfully he came down the steep incline, falling once or twice, before he reached the water's edge. He could only walk feebly and with the utmost difficulty.

"Who of all are there left?" cried out Colwell.

"Seven left."

Seven out of twenty-five! Oh, the pity of it! No, worse, the horror, the unspeakable horror of it!

The man was a ghastly object to look upon. Great hollows indented his cheeks, and his beard and hair were straggling and matted. What he wore was simply an apology

for clothing. He could scarcely speak in an intelligible manner, all his utterances being thick and mumbling, his lips twitching convulsively.

Colwell leaped out of the boat, and the man instinctively pulled off his glove to give him his hand. Then briefly and quickly the following colloquy took place.

"Where are they?" asked Colwell.

"In the tent," pointing over his shoulder, "across the hill. The tent is down."

"Is Mr. Greely alive?"

"Yes, Greely's alive."

"Any other officers?"

"No." And then in an absent-minded manner, he repeated, "The tent is down."

"Who are you?"

"Long."

Long was taken into the cutter, and Colwell, with some of his companions, started toward the point indicated by Long.

It was a desolate expanse of rocky ground they crossed before they came up to the tent. A man of soldierly bearing came out of the tent. It was Sergeant, now Major, Brainard. He drew himself up and was about to salute, when Colwell grasped his hand.

And then? Oh, the ghastliness of it all as Colwell looked within the tent! Men dying of starvation, emaciated, suffering the tortures of the damned, almost unable to move or even to articulate. One raised his head a little, as Colwell lifted the flap of the tent, and feebly put on a pair of eyeglasses.

"Who are you?"

There was no response in words, nothing but a vacant stare.

"Who are you?" came the question again.

Then one of the other men faintly answered:

"That's the Major—Major Greely."

Colwell crawled into the tent, and took Greely's hand.

"Greely, is this you?"

"Yes," came the reply, in wavering, broken accents. "Yes—seven of us left—here we are, dying like men. Did what I came to do—beat the best record."

Then his voice stopped, and he collapsed in utter exhaustion.

Besides Greely, there were in the tent two Sergeants, Elison and Fredericks; Biederbick, the hospital steward; and Private Connell, who with Brainard and Long were all who remained of the original expedition.

The whole scene, as Colwell surveyed it, was one of misery and squalor. How could it have been otherwise? Suffering unparalleled had been undergone. Almost nothing to sustain life was left. A few teaspoonfuls of brandy, that was all, and they were dividing this when Colwell came upon the scene. It was very plain that relief had only arrived in the nick of time. Not one of the survivors could probably have lived forty-eight hours longer.

The journey home was more or less uneventful. We stopped at St. John's, where we were greeted most enthusiastically. The Alert joined us there. Finally, we reached New York, where we were received by a most distinguished company, including the Secretary of War, General Sheridan, General Hancock, Commodore Fillebrown, and other officers of high rank.

Our mission was finished, the task that had been entrusted to us was completed. We had met with success, but with what a loss among those connected with the original Greely Expedition! Nineteen had perished, and but six remained to be brought home. Once more I say: Is the game of Arctic exploration worth the candle?

Well, that is for others to determine, not for me.

But what no one can question is this: Officers and men, both on the Greely and on the relief expedition, displayed the utmost gallantry and devotion to duty. Their loyalty to the purposes in view is beyond praise. All America honored them at the time, and all America honors them to-day.

AFTER FIFTY YEARS

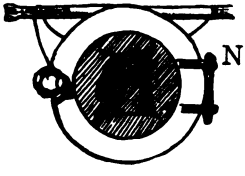
AMOS BONSALL.

Amos Bonsall was born in Delaware Co., Pa., Jan., 1830. In 1853 accompanied Dr. Kane as master's mate, U. S. N., on second Grinnell Arctic Expedition in search of Sir John Franklin, returning in 1855. Mr. Bonsall is the only living member of the second Grinnell Expedition.

AMOS BONSALL

AFTER FIFTY YEARS

By AMOS BONSALL



AN aimed-for point which apparently cannot be touched! The inaccessible! Such a point is preëminently the North Pole. Yet there is an old adage which has been proved true on more occasions than one: "It is always the unexpected that happens." And it is not impossible that the unexpected results will be achieved some day by the strenuous and untiring efforts of Arctic explorers. Advancing science with its stupendous achievements, increasing each day, will undoubtedly be the most potent factor in success, if success is ever attained.

In this connection the question naturally arises: What is the difference between Arctic exploration of the past, and Arctic exploration of the present? Of the past, as the only survivor of the famous Kane Expedition, of which I shall give a short sketch, I feel competent to speak. As to the present, I have taken a keen interest in, and have followed closely, the movements of all Arctic explorers.

Our outfit, complete as we thought it was at the time, was as nothing in comparison with those of the later expeditions. How could it have been otherwise? What was known then of the vast majority of appliances for sustaining life, and aiding transportation from one point to another, which are so clearly understood to-day? We were then like undeveloped, uneducated children, as compared with fully grown men in the plenitude of acquired knowledge.

Compare for instance, the Kane Expedition with the Baldwin-Ziegler Expedition, the most complete in every

particular that has ever started for the North. We had simply a sailing vessel, dependent for movement upon wind and tide. Wind was our only propelling power. The Baldwin expedition has three vessels, with all the advantages that steam and every modern appliance can give. The number of men taken is nearly three times that of ours, and, beyond this, are scientists of all descriptions. Skilled hunters are carried; men who have had experience in the chase of walrus, seals, bears, etc., and by this means a large amount of game should be secured. We suffered greatly from a lack of fresh meat, and this led to the scourge of scurvy, from which scarcely one of us was exempt.

The use of dogs, too, is much better understood than in our day, and this is the result of experience. Siberian ponies, of which we knew nothing, are to be employed by the Baldwin expedition. It is said that one of them is capable of carrying as much dead weight as can be transported by a team of twenty dogs.

We had only boats of a build which now seems very primitive, but the Baldwin expedition has gasolene launches of the most modern and approved pattern, which ought to prove of great service, especially in the narrow waterways, where the ships cannot pass. Portable houses, which were unknown in our day, will be most conducive to comfort. They are constructed so that they can be erected or taken down in an incredibly short time.

One enormous advantage that the Baldwin and other modern expeditions have over ours is the ability to carry food in a condensed form; for instance, tablets which contain a large amount of nourishment and take up but little room. This in itself is a great desideratum for the economization of space, which in the far north is a most serious consideration.

So far as the obtaining of pictures is concerned, the modern expeditions are incalculably in advance of ours. Photography was then unknown, and we were limited to the taking of daguerreotypes. But now the expeditions are supplied with all the latest appliances for photographic work. They have cameras especially manufactured for the purpose, and fitted with films and plates adapted to the

Arctic regions. Special artists also make paintings and sketches. The results should and doubtless will be invaluable.

Again, we had no means whatever of conveying news back to civilization, but the Baldwin expedition is generously supplied with such appliances. They have forty balloons, which will be inflated with hydrogen gas, and over six hundred buoys, which will be set adrift at intervals, with news of the condition and progress of the party. Such methods of communication were not thought of in our time, and if they had been suggested to us we should have considered them impossible of achievement. The expeditions of Peary, who is now in the far north, have also been admirably equipped, the funds for the purpose having been raised by the personal exertions of this indomitable explorer, with very little outside assistance.

Enormous advance has also been made in ice-breaking ships, built especially to force their way through the floes. The "Advance", Kane's ship, could not do that. Offensive tactics are now being used instead of defensive ones, and this will doubtless prove of great benefit. In this connection, Admiral Makaroff, of the Russian Imperial Navy, who in the ship "Ermack" has already penetrated far to the north, through the polar ice, says:

"I believe that the discovery of the Poles will depend mainly upon the use of powerful ice-breaking vessels. Dr. Nansen proved the utility of building a ship strong enough to resist the ice, and of permitting it to be carried along by the drifting ice current. Instead of a ship which can only withstand the ice, I would attack the Polar waste with a vessel strong enough to cut her way through any ice in existence."

These ice crushers may be of immense advantage in present and future expeditions. The idea of balloons, too, is coming more and more into prominence, especially through Andree's expedition, ill-fated though it may have been. If an improvement comes in the construction of balloons, as it undoubtedly will in the course of time, they will in all probability, be productive of great results.

Now to revert to my personal experiences with the famous expedition of Dr. Elisha Kent Kane, of which I was

a member, and which had a double object, the discovery of the North Pole, and the rescue of Sir John Franklin. The most intense interest was felt in regard to the fate of this gallant man, an interest which extended in a large degree to those who attempted his rescue.

As a young man, my admiration for Dr. Kane had been greatly excited, and my interest in his experiences in the Arctic regions was very keen. My elation may therefore be imagined, when I received from my ideal hero

From a painting by Albert Operti

ICE LOCKED

a letter asking for an interview at his home, 1116 Girard Street, Philadelphia. Of course I complied with his request, and called upon him. At the suggestion of his uncle, George H. Thomas, he made a proposition to me to accompany him on a projected exploring expedition to the Arctic regions, and to become one of the officers of the expedition. I was naturally very much flattered, and eagerly accepted the invitation, with the proviso that my mother should give her consent. This consent was not

easily obtained, but after much persuasion it was finally given and I reported the fact to Dr. Kane.

I was then directed to take lessons in daguerreotyping, in order that I might be put in charge of an outfit of that kind, which it was intended should accompany the expedition, for the purpose of getting plates of the scenes in the Arctic regions. Most unfortunately, the results of this work were lost on our return. The box containing the daguerreotypes was put upon a sledge on the ice, and was carried away, together with the whole collection of Arctic birds, which had been prepared with great care for the Academy of Natural Science. This was an irreparable loss, and one that to this day I have never ceased to regret.

The expedition sailed from New York on the 31st of May, 1853. There were some six officers, and the crew consisted of eight sailors, besides the steward and cooks, comprising in all a company of eighteen. The vessel was the little brig "Advance," of one hundred and forty tons. This had been donated by Henry Grinnell of the firm of Grinnell, Minturn & Co., of New York.

We were ostensibly in search of Sir John Franklin and his party. This expedition had gone to the region of Lancaster Sound, to attempt the discovery of a northwest passage, and nothing had been heard of it for two or three years. It had, to all human knowledge, disappeared from the world. Our plan was at that time considered a somewhat novel one. The intention was, instead of taking the route which Franklin's expedition had adopted, to sail directly north to the gates of Smith's Sound. This place had been visited many years before by Captain Baffin, but the passage had not been attempted by any later expedition. We hoped that we could thereby discover a new sound to the west, where Franklin it was thought, might possibly be found.

At St. John's, we were received with great enthusiasm, for knowledge of the fate of Franklin was most eagerly desired. As we proceeded northward we found the country so peculiar in its geological structure and its scenery, as to make us feel that we were indeed out of the before-known world. The people were so primitive in their habits as to render all things utterly novel.

Our curiosity was particularly excited by finding the natives so expert with their kayaks or canoes. They seemed to be able to go out on the high seas without danger. In making the port of Upernavik, we were interested in seeing a *kayaker* come out from behind the bend of the channel in which we were moving, to approach the ship. The sea was comparatively heavy, and yet the man had apparently no difficulty in making his way over the tempestuous waters. When he reached the side of the ship, we recognized how it was done. It was effected by the arrangement of his outer clothing, which was made of water-proof skin, and fastened by a drawing string around the lips of the manhole, or opening in the *kayak*, through which the man enters the lower part of his body, and then, by tying a string around his wrists and the face openings of the jumper-hood, very little water can enter or penetrate his clothing.

Upernavik was a place of great interest, as it was at that time, and I believe is to-day, the most northerly town in which white people dwell. There were a few Danes in the village, besides the officers appointed by the royal directory of Denmark. These latter took charge of the business of purchasing oil and skins from the natives, and selling to them such articles as they needed—coal, stoves, and goods of different kinds to be utilized in making their summer dresses. The association with the Danish Government redounded greatly to the advantage of the natives.

As we proceeded further north, the ice floes became more and more numerous, and again and again we had to halt because of obstructions and work our way back. Occasionally we would find what appeared to be an excellent lead, only to discover that it ended in solid ice, which was impassable for the ship. After passing Cape York, however, and entering the north water, we were not embarrassed by the floes, and the vessel proceeded in open water, until we had crossed the parallel of seventy-seven degrees, where we again encountered heavy obstructions of ice.

The season was waning, and we were growing more and more anxious to enter the field of our labors north of Smith's Sound. We passed rapidly the crimson cliffs of

Beverly. These were romantically named by Sir John Ross the "Red Snow and Crimson Cliffs." They are made crimson, partly by the rich scarlet lichen, and partly by a minute plant which grows upon melting snow, and which is called *proto carcus nivalis*. We passed on northward encountering heavier ice than we had seen before.

Then came a battle of days and weeks in which we struggled for movement, but were continually baffled by the north winds and heavy floes, sometimes at great danger to the ship. At length we were forced into a bay a hundred miles northeast of Cape Alexander, where we were compelled to seek harbor, because of the absolute impossibility of moving the ship any farther to the north and east. Dr. Kane named this place Rensselaer Bay, and it became the fixed harbor of the ship from that time to the end. The vessel was altered as much as possible into the semblance of a house, and our mode of living was changed from sailing to resting. And yet, after all, it was not entirely resting, for there were many parties sent out to establish depots of provisions for the spring journeys which had been projected.

The first expedition of observation was made on foot, as the ice was not strong enough to travel over in sledges, and we had to depend on what is known as "ice foot." This is the ice formed by the overflow of the tide, when it is cold enough to freeze quickly, the level surface being as high as high tide, and breaking down sharply to a point as low as low tide. This forms a wall on the sea side. Of course, this necessitated tortuous travel, as we were compelled to follow the turnings of the shore.

A second expedition, which was placed in my charge, was much more extended, for we went as far as the great Glacier Humboldt, which was first discovered by the party, and upon the south end of which we placed our most extended depot of provision. We found very soon that any hope of reaching the land to the north of the glacier, in the line we had contemplated, was impossible, and we were greatly embarrassed by our inability to judge distances. The land we had in view seemed constantly to recede. This is the same experience that was undergone by the earliest navigators, when they sailed for days and

days toward land which seemed to be visible to the eye, and yet, as the ship advanced, appeared to be farther and farther away. In face of this extraordinary circumstance, we could readily understand the superstition of the sailors of the early days.

Several of the expeditions were disastrous, resulting in loss of life. Our work also, was greatly hampered by the sickness and suffering of our members, only five or six being fit to go out. We did not meet with any great success, as we were only enabled to go one hundred miles north, to 81° 30′ latitude. However, Kennedy Channel was discovered to be comparatively open water, and, while it was impossible to make a channel for the ship, it gave us such information of the proper course to pursue that it enabled Hall and Sir James Nares of England, to make a much higher latitude; and the Greely Expedition, which met with scarcely any obstruction, to establish itself at latitude 82° 50′ (Fort Conger) with very little difficulty. Our discovery was certainly of great value to later explorers.

Week after week, month after month, passed, but the ice in Rensselaer Bay did not break up sufficiently to enable us to escape with the vessel. Great efforts were made to move the ship, but it could be done only for a few hundred yards, and then we were hemmed in again. The hope of escape passed from our minds.

After efforts were made by Dr. Kane to move southward, he returned to the ship with the feeling that we could not get out of the bay that year. He therefore gave to any or all the right and privilege to make an effort to reach Upernavik through the passage of Melville Bay, if they desired to do so. Eight of the expedition, leaving ten behind, started on that journey, but we encountered such heavy ice that we made no progress. The "young" ice formed over night heavy enough to render it impossible to break through with the boats, and we were compelled to give it up. In the early part of December following, after an absence of four months, the party was compelled to return to the ship. We were comparatively free from scurvy, and thanked Providence that our lives had been spared.

From the painting "Farewell," by Albert Operti, in possession of Kane Lodge

DOCTOR KANE AND PARTY ABANDONING THEIR SHIP

Thus we passed the second winter under the greatest difficulties, and still hoping that in the coming spring, we would be enabled to take the vessel out, and make the journey home with all hands. It was a hard winter, and as we had exhausted our supply of anti-scorbutics, the scurvy was making heavy inroads. Those of us who had been living on fresh foods were free from the scourge, but when we returned to the ship we had frozen hands and feet to take care of. Our straits can be appreciated, when the fact is stated that in the month of February of that year (1855), Dr. Kane and myself were the only two on the ship who were able to go outside and work for the welfare of others.

As early as possible further efforts were made to go south with the whole party; the sledges were fixed, and the boats mounted upon them, and the whole fleet started from Rensselaer Bay, on May 20, to slide these boats over the ice ninety miles to the open water. This laborious work required several weeks for its accomplishment. The ice became weak as the sun rose in power, and we were constantly breaking through, having to discharge the cargoes of the boats and extricate them from the ice, and move on, only to find the same difficulty again, every few hundred yards. In the course of time, however, we succeeded in reaching the bay, and in the latter part of June we were enabled to launch the boats in their natural element.

After more or less difficulty, we reached Upernavik on the morning of August 6, 1855, just two years to a day, from the time we had left the place on our upward voyage. We were lodged in the oil-house where we were, according to our ideas, very comfortable indeed, and prepared to wait patiently for the arrival of a vessel in the harbor, which should restore us to home and friends. About a week later a ship came in and then, after she had discharged her cargo and reloaded, we took passage on the bluff-bowed vessel " Marianna."

At Godhaven, one hundred and fifty miles south—a voyage which took us about three days to accomplish, owing to the slow speed of the vessel—we were surprised and delighted to meet with United States ships which had been sent out in search of us. They had been far to the north,

but finding that we had departed, they retraced their way and passed on to the south, hoping to overtake us before we got out of the country. This they did, by coming into the harbor of Godhaven about two days after our arrival, where the ship was waiting for clearance papers in order to set sail for Copenhagen. We took leave of our friends and acquaintances among the Danes, with whom we had had very pleasant and friendly relations, and transferred our light luggage to the United States store-ship "Release," and prepared to depart for more congenial climes.

As an evidence of the clearness of the atmosphere, after passing out of Upernavik, we could see the outline of the mountains of Disko Island, one hundred and fifty miles away, a distance in our own country which it would be impossible for the eye to reach. We met with very courteous treatment from the Danes and the Eskimo at Godhaven, and will always remember with pleasure the few days we spent on the island.

On our arrival home, we were heralded with great joy by the whole country, as it had been believed by our friends and the greater number of the people that the whole expedition had been lost; for we had been absent a whole year longer than was anticipated.

FARTHEST NORTH WITH GREELY

MAJOR DAVID L. BRAINARD, U. S. A.

Major David L. Brainard, U. S. A., was born in Norway, N. Y., Dec., 1856. In 1881 he joined the Lady Franklin Bay Expedition under Lieutenant A. W. Greely. With the late Lieutenant Lockwood he reached 83° 24′, the farthest point north ever reached by man up to that time. Was one of the six survivors rescued with Lieutenant Greely at Cape Sabine. Promoted for gallantry rendered during expedition; received Back Grant of Royal Geographical Society for 1885.

MAJOR DAVID L. BRAINARD, U. S. A.

FORT CONGER

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FARTHEST NORTH WITH GREELY

By Major DAVID L. BRAINARD, U. S. A.

THE Lady Franklin Bay Expedition, or, as it has been popularly termed, the "Greely Expedition," was authorized by act of Congress approved March 3, 1881, and to it belonged the honor of having attained a point farther north than ever before had been reached.

Considering the meager appropriation allowed for this expedition, its limited equipment, and the fact that all the members were without previous experience in work of this kind, the results achieved place it among the most successful, both scientifically and geographically, of all modern Arctic efforts.

Lieutenant (now General) Adolphus W. Greely, U. S. Army, was assigned to the command of the expedition, and with him were associated Lieutenant F. F. Kislingbury, Eleventh U. S. Infantry, Lieutenant J. B. Lockwood, Twenty-third U. S. Infantry, and Dr. Octave Pavy, together with twenty-one enlisted men of the army—all of whom had been selected with an eye to their fitness for the arduous work of Arctic exploration, from among the troops stationed at the military posts on the extreme Northwestern frontier.

The party rendezvoused at St. John's, Newfoundland, and on July 7, 1881, steamed northward on the S. S. "Proteus," reaching Godhaven, Greenland, July 16. At Upernavik, two Eskimo—Jens Edward and Frederik Thorlip Christiansen—from Proven, were engaged as hunters and dog drivers.

Leaving Upernavik on July 29, the "Proteus" proceeded northward, and on the 12th of August dropped anchor in Discovery Harbor, Lady Franklin Bay, latitude 81° 44′ N.; longitude 64° 45′ W. The stores were immediately disembarked and the vessel was ordered back to St. John's. In the meantime Lieutenant Greely had been busy superintending the erection of the frame house that we had brought with us, and by August 31, the work was sufficiently advanced to permit us to occupy our new quarters. Small hunting and exploring parties were then dispatched in various directions for the purpose of ascertaining something of the conformation and resources of the country, and, if possible, to obtain information concerning the condition of the caches of provisions which had been left by the Nares expedition of 1875. After much hard labor, involving no little suffering, numerous musk-oxen were killed, thus insuring us a supply of fresh meat for many months, and several depots of provisions were placed at points convenient for the work of exploration the following year. After this had been accomplished, the party settled down to spend its first winter at Fort Conger, as our station had been named by Lieutenant Greely, in honor of Senator Conger, of Michigan.

The winter was passed pleasantly, the return of the sun finding us busy with the details of field equipment for spring traveling. During the long Arctic night, the pro-

posed exploration of the northwestern coast of Greenland was the principal subject of discussion, and the chief ambition of each member of the party was to be chosen for this important work. The experiences of Hall and Beaumont were exhaustively considered during the tedious weeks of waiting, and the mental depression and melancholia, which seemed the inevitable accompaniments of this dreary period in the Arctic regions were somewhat relieved by the expectation that the expedition was destined to accomplish wonderful things.

During this time Lieutenant Greely formulated a comprehensive scheme of exploration covering three different directions. To Lieutenant Lockwood was assigned the northwest coast of Greenland, and that officer was directed to assume complete charge of the field work, having all the available resources of the expedition placed at his disposal, including all the caches previously established.

In the months of February and March several preliminary journeys were made in unprecedentedly cold weather, thus giving the party an experience in the details of field work which later proved invaluable to it. One of the most important of these journeys was made by Lieutenant Lockwood, Sergeant Jewell, Eskimo Frederik, and myself, across Robeson Channel, to the "Gap" and to the grave of the gallant Hall, at Thank God Harbor. Returning, we crossed the peninsula, back of Polaris Promontory, to Newman Bay, and thence home by way of Capes Sumner and Beechey.

At last, all preparations being completed, Lieutenant Lockwood organized his field force into two parties—the main and the supporting. The former consisted of Lockwood, Jewell, and Frederik Christiansen, with a sledge and team of eight dogs. The supporting party was composed of ten men, commanded by myself, and was assigned to Hudson Bay sledges dragged by hand as follows: "Sledge Hayes," Sergeants Brainard, Ralston, and Private Whisler; "Sledge Kane," Sergeant Linn and Corporal Elison; "Sledge Beaumont," Corporal Salor and Privates Biederbick and Connell; "Sledge Hall," Privates Henry and Frederick.

Our little house at Fort Conger had been a valiant home

to us through the first Arctic night, and it was with genuine regret that we turned from its cheery prospect to tempt the mysteries of the frozen sea. We had already experienced the desolation and nipping frost of Thank God Harbor and Newman Bay, and we could not but regretfully compare them to the more inviting field which we were to leave behind.

The house was cozily hemmed in on the north, south and west, by mountain peaks—the most conspicuous being the Hogback, so named from the sloping tendency of its summit; the coast to the westward for many miles consisted of inaccessible cliffs, with a height in many places of nearly two thousand feet; and to the eastward the level monotony of Robeson Channel was broken by the steep-ascending and repellent mountains of the Greenland coast. Everything that we were to leave, indeed, was pleasing and homelike; everything before us was desolate, formidable, and unknown.

At 6.30 P. M. April 3, 1882, as Lieutenant Lockwood's second in command, I left Fort Conger with the supporting party, under instructions from that officer to proceed to the snow house at Cape Beechey, twenty-five miles distant, where a depot of provisions had been established during the preceding autumn, and there to prepare field rations for transportation across Robeson Channel to the Greenland coast.

Before our departure, Lieutenant Greely called the members of the advance party together and delivered a short but impressive address, in which he informed them of the importance of the venture on which they were about to embark, the dangers involved, the necessity of observing all possible precautions, and of his earnest hope for the successful termination of the enterprise. A hand-shaking followed Lieutenant Greely's remarks, and the four sledges of the supporting party moved toward the shore. Here we found evidence that those of our comrades to be left behind had arranged to give us a soldierly farewell. As we climbed down the ice foot to the floe, three hearty cheers rang out, followed by a tiger, and every flag and every gun in the company were utilized to give appropriate emphasis to the kindly feelings of the unlucky ones who had not been designated to take the field.

LOCKWOOD BRAINARD FREDERIK

From an original painting by Albert Operti, now in possession of the United States Government

FARTHEST NORTH OBTAINED BY OFFICERS OF U. S. ARMY

Lieutenant Lockwood reached Cape Beechey on the morning of the 5th and that evening, soon after 8 o'clock, both parties left the comfortable snow house and pushed across the hummocky ice packs toward the Boat Camp of the "Polaris" expedition, on the southern shore of Newman Bay. The system of marching at night when the temperature was lowest and sleeping during the day was adopted from the start, thereby insuring the greater comfort to the party.

There was no difficulty in traveling at night; for, after the 9th we had the sun with us constantly night and day, and while we were cheered and stimulated by its warm, bright rays, the powerful reflection from the snow blistered our faces and tortured our eyes. At first goggles with tinted lenses were used as a protection, but later they were discarded because they became a source of annoyance, owing to the necessity of having frequently to remove them, in order to clear away the incrustation of frost which had formed from the moisture of the breath. The most of us were afflicted with snow blindness, and numerous were the schemes to which we resorted to prevent this form of suffering.

The journey across Robeson Channel was attended with great hardships, for, with few exceptions, the men were not inured to field work under the trying conditions encountered. The snow was deep and soft, the ice was rough, and the narrow sledges were frequently overturned and buried in the drifts. Thus our progress was slow and laborious and at times almost disheartening. To add to our discomfort, snow storms prevailed most of the time, and for two days a violent gale stopped our advance and confined us closely to our tents pitched on the ice. Several cases of frost bite occurred, but fortunately they were not serious. We learned from experience that the only safe method of treating superficial frost bite was to apply the warm hand briskly to the affected part, until the frost was removed. Elison, however, rejected the approved method, and by adhering to the old idea of using snow, lost every vestige of skin from his somewhat prominent nose.

Our first camp after leaving Cape Beechey was made under rather unhappy circumstances. The regulated scale

of rations went into effect that morning with particularly disagreeable results, not wholly unexpected, and which tended to lower the social atmosphere quite to the zero point. The allowance of alcohol for fuel was not nearly sufficient to bring the chocolate to the boiling point, and our stew of corned beef and broken hard bread was just barely warm. The regulation pint of fluid was not at all satisfactory, neither was it sufficient for the tired, chilled, and hungry men, who had been laboring and perspiring incessantly for several hours in a low temperature. Later, however, when the cooks became more familiar with the cooking apparatus, and knew better how to economize fuel and time and make the most of their opportunities, the allowance of alcohol was found to be ample. Strange as it may appear, thirst was our greatest enemy and was more dreaded than the cold. The work of hauling a heavily laden sledge through rubble ice was so trying, even under the most favorable conditions, that the traveler was kept constantly bathed in a profuse perspiration, inducing a burning, exasperating thirst, from which there was no escape, and which could in no way be alleviated.

Our position on the floe in this place, a few miles from shore, was exposed to the chilling blasts sweeping relentlessly down from the north; the temperature was about 50° below zero, and this unwelcome combination rendered sleep almost an impossibility. To add to our discomfort the sleeping-bags, which had become saturated with moisture during the previous nights, through the melting of the accumulated frost, and which while occupied were kept in a pliable state by the warmth of our bodies, had become frozen during the day to the rigidity of iron. In order that they should occupy as little space as possible on the sledges, they had been rolled up tightly on leaving camp, and had frozen in that position. We were not able to get into them at once, but were compelled, from necessity, to thaw our way gradually in by sitting on the roll, and inserting the feet under the outer edge. As the warmth of the body was imparted to the frozen folds, they yielded slightly to the pressure and the feet were pushed still farther in, until in time the whole body found its way inside the protecting skin and the flap was pulled down over the end in the vain effort to shut out the cold.

The sleeping-bag is one of the most important articles in the equipment of the Arctic explorer. It is made in the form of an envelope opening from the end, is somewhat narrow at the lowest part, the hair turned inward, and is provided with a large flap which may be drawn over the exposed end and secured with thongs. The best bag is made of reindeer skin, but well-tanned dog, sheep, or buffalo skin may be used with good results. An outer envelope of oil-tanned sealskin renders the bag impervious to water and contributes much to the warmth and comfort of the occupant. The majority of our bags were made of buffalo skin, without the protecting outer covering, and when spread ready to be occupied, with only a single rubber blanket between them and the frozen snow, their appearance did not inspire confidence and they were never inviting. Frequently two and sometimes three men occupy the same bag. The obvious advantage of this arrangement is that the sleepers keep each other warm; the disadvantage, equally obvious, is the impracticability of individual action, the close quarters rendering it impossible to change one's position without the contemporaneous shifting of one's companions. A sleeping-bag is indispensable, but it is uninviting and uncomfortable at best, and certainly is not conducive to pleasant dreams.

On the second morning Henry complained of rheumatic pains and a sprained knee, and asserted that he could not proceed further, so Lieutenant Lockwood ordered him to return home. Connell discovered that one of his feet had been frostbitten during the night, but with characteristic pluck he determined to go on with the party and took his place in the drag ropes. After painfully hobbling along for some time on his blistered foot, he reluctantly turned back and joined Henry. This reduced the force of the supporting party so materially, that Jewell was detached from the dog sledge and sent to assist us.

At 7 A. M., April 10, we reached the Boat Camp which Lieutenant Lockwood had designated as a supply depot. The upturned boat and a few fragments of the tent abandoned by the "Polaris" party in 1872 were the only evidence that the spot had ever before been visited by man.

During our stay at this camp our time was fully occupied

in bringing up the provisions which we had previously stored on the coast south of Cape Sumner, and in preparing them for transportation, as well as in repairing the sledges, which were much battered by their encounters with the razor-like edges of rubble ice. From this camp Lieutenant Lockwood made a flying trip back to Fort Conger for a final consultation with Lieutenant Greely, and for the purpose of exchanging the unserviceable runners of the dog sledge for another and stronger pair. The defective ventilation of the snow house we constructed here resulted in the illness of two of our men—Biederbick and Whisler, and Lieutenant Lockwood directed that they return home for proper treatment. Biederbick begged to be allowed to accompany us northward, but the necessity of his immediate return was obvious to all.

All preparations having been made, our northern journey was resumed on the evening of April 16, the men in the drag ropes each hauling from 150 to 220 pounds. Crossing to the north side of Newman Bay, we cut short the projection of land forming Cape Brevoort by traveling overland through Rocky Gorge Creek and Lost River, reaching the Great Polar Sea at Repulse Harbor. The conditions of traveling across the divide were particularly trying. Rocky Gorge Creek was, in places, extremely narrow, rocky, and tortuous; the deep snow was covered with a crust not quite strong enough to bear our weight, and through this our feet and sledges broke at every step. The snow was succeeded by patches of bare ground and beds of gravel, over which the sledges could be dragged only by standing pulls.

From Repulse Harbor, which place we left April 23, we pushed northward along the winding coast, passing in succession Drift Point, Black Horn Cliff, and Cape Stanton, near which we found the small cache of rations left by Lieutenant Beaumont, R. N., in 1876. This latter point placed us farther north on the coast of Greenland than Americans had ever before reached; thence on, past Hand and Frankfield Bays, finally on April 27, reaching Cape Bryant, the place selected by Lieutenant Lockwood from which the supporting party was to turn back. Here, as at many other points on the coast, traces of hare, lemming and ptarmigan were found.

During the 28th, we remained at Cape Bryant rearranging our load, and securing some rest for the final dash northward. Ralston, Elison and I proceeded along the coast of St. George Fiord to Cape Fulford, which we ascended. Looking out from our lofty position on this promontory we obtained an excellent view of Cape May, Dragon Point and Mounts Hooker, Coppinger and Farragut, as well as of the fringe of stately snow-capped mountains along the western shore of this fiord. Stephenson's and Beaumont's Islands and Cape Britannia, however, could not be distinctly seen, owing to the hazy atmosphere in that direction, but dark, shapeless masses, barely discernible, alone indicated to us the position of the lands which we had resolved, if possible, to attain.

On the 29th, we built a large cairn in which surplus provisions and all articles of our equipment, not absolutely necessary for traveling, were stored for future use. In accordance with Lieutenant Greely's wish, expressed before our departure from Fort Conger, Lieutenant Lockwood then detached me from the supporting party to accompany him to the northward, and Sergeant Linn was directed to conduct that party back to the Boat Camp and there await our return.

Before taking leave of this party of men, I desire to speak of the praiseworthy manner in which they performed all their arduous duties, and of their intelligent efforts, under all circumstances, to advance the interests of our undertaking. They responded with alacrity and enthusiasm to all demands; they labored cheerfully and incessantly, and bore their sufferings with uncomplaining fortitude.

At 4.18 P. M. that day, Sergeant Linn and his party left for the Boat Camp using the sledge "Hall" to transport their provisions and effects. Half an hour later, Lockwood, the Eskimo dog driver, Frederik Christiansen and myself started with the dog team and twenty-five days' provisions, taking a course toward Cape May. The total weight of our load, including sledge, was 783 pounds—nearly ninety-eight pounds to each dog.

The intelligence and usefulness of the Arctic dog surpasses understanding, and of all these animals met with, "Riten-

benk," the king dog of our team, was the most conspicuous example. Large, with a mixed white, black, and mouse colored coat, a tail which curled tightly over his back, a broad intelligent head and a bright twinkling eye, he was the embodiment of strength, courage and sagacity. Ritenbenk was a wonderful fellow. By reason of his great strength and highly superior intelligence, he had gained the supremacy of the team. He was, therefore, the leader in all the schemes for stealing our provisions.

One day when he had stolen a ptarmigan, which had been placed for safety on the ridge pole of the tent, he lay down, and, apparently with no qualms of conscience, began in the most complacent manner to eat it. I rushed at him with a spade, expecting to drive him from our anticipated dinner, but he was far from being the coward I had pictured him. He gave vent to a growl of defiance, and stood immovable, his sturdy legs wide apart, and his great bold eyes looking squarely into mine. Of course, I might have crushed his skull with a blow, but my admiration for his courage overcame me, and I threw away the spade, and called him by his familiar name " Rit," whereupon he trotted up and rubbed his head in the most confiding manner against my knee.

Each pack of Greenland dogs has an acknowledged leader, an absolute, autocratic king, who has won his way to supremacy by fighting every other dog that dared to enter the lists against him. Likewise each team has its king, and this dog exercises undisputed sway over the others, enforcing discipline and administering punishment whenever in his judgment it is necessary; and it must be admitted that the judgment of a king dog often appears to an outsider to be biased.

When Ritenbenk joined Lieutenant Greely's pack at the Greenland town, from which he was named, a huge dog, known as " Disco King," was the ruling spirit among his companions, which were confined in a huge wooden pen located on the main deck of the " Proteus." The battle for supremacy was fierce and prolonged, and Disco King, divested of his royal authority, was ever afterward a broken-hearted mean-spirited outcast, who lived a melancholy, regretful life, apart from his former subjects. He had not

recovered from his humiliation on the northern trip, though several months had elapsed since his downfall, and he would discourage the friendly approach of the members of our party, or of his associates, with a churlish snarl which soon gained him the appropriate name of " Howler." He never engaged in Ritenbenk's midnight predatory raids on our commissary department, but would frequently warn us of the conspiracy on foot to rob our larder. For this, and other reasons, he was not popular with his companions:

SLEDGING TO LOCKWOOD ISLAND

and Ritenbenk encouraged his subordinates in their constant attacks upon his former enemy. " Howler's " only vengeance was in tugging fiercely at his trace, whenever the king and his people were inclined to move at a more leisurely pace, and he was the last to cease exerting his strength when the heavy sledge stuck in the snow. Poor " Howler's " faithful and loyal service to us, terminated abruptly about thirteen months later, when he succumbed to hard work and short rations, only a few miles from Fort Conger, as we were returning from our long trip across

Grinnell Land to the Western Ocean. He was turned loose to follow us to the station, but died from exhaustion while struggling along in the deep snow to his home.

From day to day we grew to depend much on the superior intelligence of Ritenbenk in passing our sledge over difficult places and in plowing our way through the deep snow, now made soft by the rising temperature. When the driver gave the signal for the team to start, Ritenbenk would jump to his feet uttering his orders to his subordinates in quick, sharp barks, at the same time pressing into his harness with all his strength. Woe to the unfortunate dog that did not respond with alacrity to his commands, for the punishment was swift, sure, and effective. We watched Ritenbenk with great solicitude, and one day when he was sick and staggered along with drooping ears and tail, we were all depressed. That night he was offered a place in the tent protected from the storm, but, ill though he was, he scorned such a resting place, preferring to share the bed of snow with his fellows.

When we started out the traveling at first was very good, but upon emerging from the fringe of shore hummocks, we entered on a " domed " floe which was subsequently discovered to be embayed ice. The dogs trotted rapidly along over the undulating surface of this floe for a short time, but soon deep snow was encountered which increased in depth and softness as we advanced until our sledge finally sank to its slats, whereupon the dogs sat down and refused to work. By seizing the traces close to the sledge and making " standing pulls," we succeeded in again placing the sledge on firm crust, but it soon broke through as before. The condition of the snow finally became so unfavorable that Lieutenant Lockwood decided that it would be economy of time and labor to advance half of the load at a time, until there should be an improvement in the traveling. He also changed the course from Cape May to the direction of Cape Britannia, thus avoiding the deeper snow which lies well up in the bays near the land.

On the 2d of May, Lieutenant Lockwood informed Frederik that if he would get his team and sledge to Cape Britannia he would be rewarded with 100 kroner. Frederik needed no other aim to stimulate his efforts, and voice and

lash were used without stint to urge his dogs forward. When near Cape May, we crossed a remarkable tidal crack cleaving the otherwise solid floe of embayed ice, and endeavored to get a sounding, but found no bottom at 835 feet. At the place of crossing the crack was about four feet wide, but in many places it was much wider and extended as far as we could see to the northwest in the general direction of Beaumont Island, and to the southeast toward Cape May.

Owing to the great difficulties experienced near Cape May by Beaumont's sledge party in 1876, in consequence of deep snow, we had not been sanguine of reaching farther north than Cape May, but now we saw Cape Britannia in our grasp and put forth every effort to reach it.

At 7.30 on the evening of May 4, we reached this cape, and though much exhausted, dragged ourselves up the ice foot to the land. But our enthusiasm soon overcame our fatigue, for we realized that we had reached a point on the coast of Greenland, higher than had ever before been attained, and were at a place where the most northerly land on the globe stretched out before us. Quickly producing the flag of our country, and lashing it to the upstanders of the sledge, the Arctic breezes saluted the Stars and Stripes. Naturally, we felt an honest pride in our achievement, accomplished not without much hard labor and suffering, but mingled with this pride was a feeling of awe that the unknown always inspires. Beyond us all was new. What was it? Would we succeed in solving its mysteries? These were the thoughts that came uppermost in our minds.

Just above the ice foot we built a cairn in which we placed rations for our return to Cape Bryant, such of our dead weights as were not deemed absolutely essential, and a record of our journey to that point. Lockwood and myself then ascended the high rocky promontory forming the southwestern extremity of Cape Britannia and were about two hours in reaching the summit, where the altitude as indicated by our barometer was about 2000 feet. Here we obtained an extensive view in all directions, repaying us a thousand times for our toilsome ascent. We saw that the trend of the coast was to the northeast, a dark promontory

fifteen miles away limiting the view in that direction. Between it and our position were three sharp, angular capes of striking appearance and apparently separated by deep fiords extending to the southeast.

In the interior, which was subsequently named by Lieutenant Greely " Nares Land," could be seen to the extreme range of our vision a confused mass of snow-covered peaks towering high above our position on Britannia, and from among this frozen chaos an occasional glacier of moderate size struggling toward the sea. To the north and west nothing but the polar pack was visible. At this time a high wind, laden with the icy breath of countless winters, came sweeping over us and cut short our observations. Constructing a small cairn in which Lockwood deposited a record, we then returned to the tent we had pitched on the ice foot.

During our absence, Frederik had shot a ptarmigan, and we found fresh traces of foxes, hares, and lemming. Indications that musk oxen had at one time visited these regions were also observed. After obtaining a much-needed rest we again set our faces toward the north and with buoyant hearts advanced into the new regions.

In passing from one point to another along that unexplored coast, both Lockwood and myself felt an exhilaration we had never before experienced. When rounding a cape we were possessed with feverish impatience to see what was beyond, and in our own excitement could hardly understand Frederik's lack of enthusiasm. While he was an excellent man in every respect, and thoroughly devoted to our interests, he utterly failed to comprehend our object in traveling about in those inhospitable regions, subjecting ourselves to almost incredible hardships, when we could have remained at home where there were warmth, shelter, and an abundance of food.

As we pushed northward the temperature gradually rose, owing to the advancing season, and when the highest point was reached our thermometer registered +14. This high temperature soon denuded the dark surface of the cliffs of their winter's covering and the snow on the ice foot became damp and soft, thus rendering traveling much more difficult; but on the other hand the absence of the keen cold

enabled us to sleep in our bags in comparative comfort and the patient cook prepared his meals without frosting his fingers while handling the metal equipment of his outfit. During these days we sighed with regret for our snow-shoes which, to reduce our constant weight, had been left behind at Cape Britannia.

When the hour for camping arrived, we selected the deepest snow we could find, usually a heavy drift in the lee of a floe-berg or other sheltered place, and here the tent was pitched. A rubber cloth was spread for the floor of the tent and on this the sleeping-bags were laid. The double bag occupied by Lockwood and myself was placed on one side of the tent and Frederik's single bag on the other. Frederik in the meantime was chopping the pemmican for the dogs while one of us stood, whip in hand, to guard him from the ravenous brutes. When the food had been broken into small pieces it was scattered on the ground and the dogs came on with a rush—each snarling, grabbing and gobbling with all his might, and in the frenzy of his greediness bolting pieces whole. In the twinkling of an eye the feast disappeared and then Ritenbenk, provoked because he had not secured sufficient to gratify his hunger, would usually exercise his prerogative as ruler, and shake two or three of the other dogs by way of expressing his disgust. A few minutes later mournful howls would be heard from the dogs which, having bolted the frozen food, were paying the penalty of their indiscretion. The animals were fed only once each day at the conclusion of the journey, it having been found by experience that dogs work better when they have their meal in anticipation than when they have it in their stomachs. On the outward trip the allowance for each dog was a pound and a quarter of pemmican each day and on the return journey—the load being lighter—one pound was given, and although at the meal hour the animals appeared to be nearly famished, the quantity of food was ample, for on our return from this trip, lasting sixty days, the aggregate weight of the team was seven or eight pounds more than when we started.

While the dogs were being attended to, the cook—who was either Lockwood or myself—would search about for a fresh floe-berg and chop sufficient ice to fill our cooking

vessels, after which the alcohol lamp would be brought out, placed on the floor between the sleeping-bags, and lighted. The tent was tightly closed to keep out the wind and drift, and while the cook was engaged with the meals the others were preparing to retire to the depths of their respective bags. The foot-gear worn during the day was removed, dry stockings were substituted, and over these was drawn a pair of warm dog-skin boots, the hair being turned inward. When the meal was ready the others sat up in their bags, receiving from the cook their portions in tin plates and tin cups. The menu was simple, consisting of a stew of some sort, hard bread, and tea or chocolate. Coffee was considered objectionable, and was therefore never used by us while on long sledge journeys. As a base for our stews we had the choice of fresh musk ox beef; boiled, roast or corned canned beef, bacon, sausage, pemmican, baked beans, etc., which gave us a fair variety. The meal finished, the cook prepared the food for breakfast and filled the cooking vessels with ice, brought into the tent all food not in tins, that it might not be stolen by the dogs while we were sleeping, and then he was ready to join the others in their bags. In the morning the cook got up first, and with chattering teeth and much shivering cooked the breakfast and served it to the others sitting up in their sleeping-bags. Dressing hurriedly, the equipment was packed and securely lashed on the sledge and we were ready for another day's march.

Frederik, the Eskimo dog-driver, was a faithful, conscientious and hard-working fellow, and from daily association we grew very fond of him. He worked incessantly during the march, urging on his tired team with voice and whip, and at night slept soundly, undisturbed by the creaking of the tent or the howling of the dogs. But we were not happy in the companionship of this man, for he had a snore, a deep bass, awful snore such as might rupture domestic peace or move one to desperate deeds.

Having no journal to write, Frederik would fall asleep immediately after the evening meal, and by the time Lockwood and myself had completed our record for the day and were ready to slide down into our sleeping-bag, mournful sounds would be issuing from the bag on the opposite side of the tent. Of course under such circumstances sleep was

impossible, and finally, in self-defence, we were forced to adopt a plan which contributed to our own comfort but which had the effect of disturbing Frederik's rest. After trying in vain to compose ourselves to sleep, one of us would reach over and interrupt the objectionable snoring by rousing Frederik from his slumbers and then ask him in a tone affecting concern for his welfare whether he was not cold and if it was possible for us to aid him in any way. He always appeared touched and grateful at this solicitude and never failed to reply that he was "all right." Before he could resume his nocturnal music we would both be sleeping soundly.

Just north of Cape Frederick, at the margin of the embayed ice, we came upon a tidal crack about 100 yards in width, which, judging from appearances, had been open all winter, and which obliged us to keep on the fast ice between it and the shore.

The ice on the northern coast of Greenland did not present the same characteristics as that met with farther south. The large floes and floe-bergs of the so-called paleocrystic ice, frequently seen along the Grinnell Land coast were rarely found north of Cape Britannia. It was evident that the embayed ice in the deep fiords, especially in St. George Fiord, was the birthplace of the domed paleocrystic floes. It had all the external characteristic of the paleocrystic ice and was doubtless formed by the accretion of snow which the summer's sun could not entirely melt. These floes grow in thickness from year to year, and occasionally a section is broken from the outer edge, drifts out into the polar ocean, and becomes a floe-berg. This fast ice extends from cape to cape, its outer limit being marked by a fringe of rubble ice, piled high by the pressure of the moving pack during the brief summer season.

We camped at the end of this march just north of Elison Island. The next night the traveling was heavy and our

progress slow. We saw a great many tracks of foxes, hares, and lemming, and also some old tracks which Frederik said were those of a bear. Frederik had the good fortune to shoot a hare that evening—a valuable addition to our scanty larder.

Rounding Black Cape, we pitched our tent on a point of land of which it formed a part. Here we built a cairn in which we left two days' provisions for ourselves and dogs to be used on our return. Upon again resuming the march our progress was greatly retarded during several days by a severe storm which finally compelled us to camp for sixty hours at Mary Murray Island—a loss of time we could ill afford. To make good the time thus lost we were forced to do one of two things—reduce our rations or sacrifice one of our dogs. We wisely adopted the former course.

On May 13, the storm abated and we prepared to resume our advances. A rough reduction of observations obtained here placed us in latitude 83° 19′ N. The trend of the coast was still to the northeast, our view terminating at a bold promontory apparently some sixteen miles away.

Starting from Mary Murray Island we struggled on through the deep snow to Hummock Cape, where we were delayed by the immense masses of ice pushed up against the abrupt face of the rocky headlands. We were compelled to lower our sledge by ropes from the ice-foot to the floe, where we found ourselves in a bewildering tangle of rubble ice. In extricating ourselves from the intricacies of this ice-pack, we had to cross the tidal track several times. These crossings were attended with considerable danger, and once we narrowly escaped engulfment by the breaking of the thin ice at the margin of the crack.

On entering Weyprecht Inlet we had an excellent opportunity of observing the land on its northern side. Back some distance from the inlet we saw a magnificent mountain (Mount Schley) not less than 4000 feet high, standing like a giant among a group of lesser peaks. From the outer fringe of mountains the land sloped gradually toward the ocean, terminating in a splendid headland (Cape Christiansen) at which our journey northward was to end. We camped at the northern extremity of this cape, much exhausted from our long tramp through the deep snow.

Owing to the fact that our supply of provisions was nearly consumed, Lockwood reluctantly decided that we would remain at this point only long enough to make a satisfactory determination of our position and then turn homeward. From our observation at Mary Murray Island we knew that we had attained a higher northern latitude than had ever before been reached, and that we stood on land farther north than any that had been known or supposed to exist. We unfurled the glorious Stars and Stripes to the exhilarating northern breeze, with a feeling of exaltation impossible to describe. We shook each other's hands from very joy, and even hugged the astonished Eskimo, who wondered what it was all about.

We had struggled hard for many days through storm and blinding drifts which gave us only momentary glimpses of the outlines of the rugged coast along which we groped our way, and we naturally felt elated over the satisfactory issue of our endeavors. For three centuries our English brothers, by dint of energy, unflinching perseverance, and dauntless courage had held the supremacy of the farthest north over all others, and we could hardly realize that the honor had now been transferred to our little party.

We received material assistance from the maps and sketches made by Lieutenant Beaumont, R. N., of the Greenland coast as far north as Cape Britannia, and these sketches were the more appreciated, knowing as we did the distressing circumstances under which they had been prepared.

Soon after camping, the storm recommenced and we retired to our tent to work up our notes and to obtain some much-needed rest. The wind blew all night in fitful gusts, threatening at times to tear our tent from its fastenings. The next morning we were surprised at a visit from a snow-bunting, which came fluttering about the tent in the driving storm, uttering its cheerful chirp and then flying away to the cliff above us.

During breakfast the wind subsided and snow began falling in great flakes. Soon, however, the storm ceased, the sky cleared, and the sun came out brightly, but unfortunately too late for a meridian altitude.

Had we not been detained by the storm at Mary Murray

Island, we could have gone twenty-five or thirty miles farther up the coast, and more than likely settled for all time the vexed question of the northern extremity of Greenland, which has since been solved by the courage and persistence of Lieutenant Peary. It was believed by some of the best authorities on Arctic matters that from Cape Washington the coast would be found trending to the southeast, in the direction Cape Bismarck, the most northerly known land ever attained on the east coast of Greenland. The settlement of this important question would have been a fitting close to our discoveries.

We built a cairn on a narrow shelf directly under the frowning face of the massive cape, which fronted the north. It was constructed on a substantial and large scale, commensurate with its importance, and in it were placed a record of our journey and a minimum thermometer. A small collection of rocks and vegetation was then made, but it was difficult to obtain good samples, as they had to be chopped with a hatchet from the frozen soil. The vegetation, consisting of lichens, grasses, and flowering plants, was abundant considering the latitude. Numerous traces, all recent, of foxes, lemming, hare, ptarmigan, and snow-bunting were observed.

In my travels over the United States, and especially through the unfrequented portion of the Rocky Mountains, I had never found a spot so remote or inaccessible that it had not previously been visited by the roadside artists who had inscribed their gaudy advertisements of Plantation Bitters or other nostrum on every conspicuous rock and cliff. Here at last I found a place beyond their reach, and it seemed almost lonesome not to be greeted by the familiar notices; so taking a file from the sledge I walked to the cliff and there wrote with the sharp steel point the magic characters, "S. T. 1860 X." When I informed Lockwood of what I had done he laughingly said he was convinced that I was in the employ of the firm and that I expected to receive payment in bitters for my work. He suggested that an advertisement of soap would have produced a more substantial and useful dividend.

At 2 P. M., May 15, the last necessary observation was obtained, and our position was found to be in latitude

83° 24′ N., longitude 40° 46′ W. We were exceedingly fortunate in having such splendid weather for the astronomical work. Failure to secure reliable observations for the determination of position would have rendered the result of the expedition vastly less satisfactory, for our position could not have been accurately known until some more fortunate future explorer should have found our cairn and confirmed our discoveries.

Leaving Frederik in camp to prevent the half-famished dogs from eating our equipment, Lockwood and myself ascended to the top of the Cape to obtain a more extended view of the country, and prompted by sentiment, to again unfurl our flag over the new land. The summit, at an estimated altitude of about 2600 feet, was a very narrow plateau, extending back some distance and gradually sloping upward to the high ground which terminated in Mount Schley.

The scene was grand and impressive beyond description. To the southwest arose the dark outlines of Mary Murray Island and to its left and beyond, dimly showing, were two of the capes we had rounded in coming up the coast. About eight miles to the northeast a point of land (Cape Kane) was visible, similar to the one on which we were standing, with an intervening fiord, which probably communicates with the one to the west, making of this land an island, to which Lieutenant Greely subsequently gave the name of Lockwood Island, in honor of its discoverer. Still another point (Cape Washington), about fifteen miles away, projected farther to the north than the intermediate one—the two being apparently separated by a fiord. In the distance, looking past these two points, we saw a low, blue line, stretching away to the northward, but owing to haze in that direction it could not with safety be pronounced land, though at first it gave us that impression. To our south the coast was badly broken by entering fiords and the interior was the embodiment of icy desolation—a confused mass of snow-capped peaks.

Turning our gaze toward the north, the Polar ocean, a vast expanse of snow and broken ice lay before us in all its gloomy solitude. Within our horizon of perhaps sixty miles, no sign of land or open water could be seen. The

ice appeared to be rubble, the absence of large paleocrystic floes being particularly noticeable.

A fog rolled up from the northeast, interrupting our view and warning us to descend. Hastily erecting a small cairn in which Lockwood placed a tin case containing a record of our journey and discoveries, we took a parting look and quickly descended to camp.

Our work was now completed and we turned homeward, reaching Fort Conger, June 1, having been absent fifty-nine days, during which we traveled nearly eleven hundred miles.

In closing this sketch I cannot refrain from touching briefly on the character of Lieutenant Lockwood, the leader to the "farthest north," and paying to his memory a tribute of my love and admiration. He was a noble fellow, brave, true, and steadfast and withal as gentle as a woman. His work of exploration was performed unselfishly and without hope of reward or favor, and his high aim is attested by these words in his journal: "My great wish is to accomplish something on the north coast of Greenland that will reflect credit on the expedition and on myself."

How grandly was his wish fulfilled! By his incomparable zeal and devotion to duty his brightest dreams of success were more than realized, and his geographical work stands as an imperishable monument to his memory.

POLAR HOSPITALS

HENRY BIEDERBICK.

Henry Biederbick was born in Waldeck, Germany, Jan., 1859. In 1881 he joined the Lady Franklin Bay Arctic Expedition, under Lieutenant Greely. Was appointed Hospital Steward, and Assistant Naturalist of party. He was one of the survivors rescued at Cape Sabine by Admiral Schley in 1884.

HENRY BIEDERBICK

POLAR HOSPITALS

By HENRY BIEDERBICK

NURSING the sick is at all times a serious problem, but has been brought to such a perfection in our hospitals, and at our homes also, when professional nurses can be employed, that the patient suffers as little as possible. This is entirely different, however, on an Arctic Expedition, and I will give here a few instances which occurred during our three years' sojourn in the frozen North.

After landing in Lady Franklin Bay, in latitude 81° 44′ north, longitude 64° 45′ west, a house measuring 65 by 21 feet in the clear was at once constructed. It had double walls, the two being about 15 inches apart, and was built so as to give the greatest possible comfort. The interior was divided into three rooms, one 16 by 21 feet for the officers, another to be occupied by the other members of the expedition, 40 by 21 feet, and the kitchen, situated between the two, 14 by 8 feet, while the hallway alongside measured 7 by 8 feet. On the north and south sides, so-called lean-tos were made from canvas and tar paper; these were used for the storage of supplies, and also served as stopping places when going out or coming in from the great outside cold.

This house was our permanent place of abode for the first two years of our Arctic stay, and I am glad to say the health of the party was such that it was seldom a sick-bed had to be used therein; and that in the few instances when we had a patient on hand, we were able to make him quite comfortable, and attend to his every want.

Our first patient was Private Henry, who, on a trip to Cape Murchison, about twelve miles distant, on September 7 and 8, 1881, was so exhausted from exertion and cold, that he had to be dragged home on the sledge. He soon recovered after restoratives had been applied and rest given.

On the day following, a more serious case presented itself. Dr. Pavy, who had gone north overland with Sergeant Rice, towards Cape Henry, returned to the station with the report that he had left Sergeant Rice about ten miles north, suffering greatly from rheumatism. Four men started at once with a sledge and an improvised stretcher, to fetch Rice to the station; but after bringing him as far as St. Patrick's Bay, they were too much exhausted to carry him up the steep hill there, and more help had to be sent for. We succeeded with hard labor in carrying Rice, whose suffering was pitiful, to the plateau above, whence we dragged him to the house on the sledge. Rice's lower extremities were very much inflamed and swollen, as were also his wrists and hands. We made him as comfortable as possible, and succeeded in having him out of bed on the tenth day.

After that, frostbites were the main affliction, I being the one to suffer the most in this respect. Traveling over the ice, hauling provisions northward for caches to be used in our proposed effort to go north in the following spring, we kept too close to the shore, and on November 7, when an exceptionally high spring tide broke through the crevices which divided the land from the ice, I got my feet very wet, and as the temperature was about 40 below zero, it did not take long for them to freeze. We camped at once and changed foot gear, but my left foot was frozen quite severely. Lieutenant Lockwood and Sergeant Brainard alternately rubbed my feet until circulation was restored, and then the pain commenced. I shall certainly never forget that night, in which I shared with Lieutenant Lockwood a single sleeping-bag, suffering all the tortures imaginable. My comrades had to drag me to our home station on the sledge, and arriving there, Dr. Pavy at first feared that it would be necessary to amputate at least the large toe on one foot; but it healed very nicely, although it was sore

almost through the whole of that winter in the Arctic. Several of the others suffered from slight frostbites on that same occasion, and many times did this occur afterwards, but none was so serious as to cause the loss of even a finger or a toe, except the sad case of poor Sergeant Elison, of which I shall speak at length hereafter.

During our sojourn in the north two simple fractures occurred; Sergeant Gardiner broke his left leg by slipping on the ice and falling against some projecting point, while endeavoring to read the tide-gauge. This occurred November 30, 1881, but by Christmas of the same year he walked round again, with the aid of a strong cane. On December 13, Sergeant Rice was unfortunate enough to break his left shoulder bone, by falling against a sharp piece of hummocky ice, while out in the dark, searching for our little Eskimo Jens, who had in a moment of depression of spirits taken it into his head to wander off in search of a happier hunting ground. He was overtaken by Dr. Pavy and a party about nine miles distant from the house. Rice's shoulder mended rapidly and neither he nor Gardiner ever suffered thereafter in consequence of their injuries.

It is strange that in that extreme cold climate, no so-called colds, such as catarrh or bronchitis, were ever incurred by any of us. This is the more remarkable, if one considers the rapid changes of temperature which we met when going out of a comparatively warm room into the outer air where it was sixty degrees below zero, or even lower; or when coming in after spending a few hours inhaling those icy blasts.

A few light cases of tonsilitis occurred, but they were of so trifling a nature, that they hardly deserve mention. Private Bender had suffered previously from an affection of the lungs, and often complained of pains in his left side, but recovered entirely, and did some good service afterward.

The spirits of the party often became somewhat depressed during those dreadful long Arctic nights. When the face of old father Sol left us on the 16th of October, not to be seen again until the 1st of March, there was a general feeling of lassitude, loss of appetite and sleepiness in some

instances, wakefulness in others, and anæmic condition generally. Our commanding officer was unsparing in his efforts to entertain, and the brighter members of the party would at all times try to amuse and cheer the downcast ones. With the return of the sun, all this was changed. The appetite increased, cheerfulness of spirit took the place of gloom, and the body became stronger as the mind grew brighter.

During those dark days it was necessary to administer tonics. Iron in its various forms was found to do the most good. Besides the rheumatism of Rice, previously spoken of, several other cases occurred, the pains in each instance being very severe. Lieutenant Greely, Sergeant Linn, Connell and Henry suffered at different times, but the most serious attack was that experienced by myself, and I have never recovered from it. On leaving Fort Conger, July 9, 1883, I was able to hobble down to the boat with the aid of a stout stick, but notwithstanding all the discomforts suffered on our retreat, being wet to the skin most of the time, sleeping either on the oars in the boat, or on the ice itself, I improved daily, and after the fourth day was able to work as hard as any of the others.

Although we had labored hard during the two years, and suffered many discomforts, the worst was to come after abandoning our home station, in order to meet a ship, which we thought must be somewhere south of us, trying to reach us. It had been promised that one should be sent, and the retreat was commenced by orders received at the time of our start northward. We set out from Fort Conger with a steam launch, three small boats and a little dingey, taking all our records, the most valuable and necessary instruments, about sixty days' provisions, and our sleeping-bags. Each man was allowed eight pounds for his clothing and personal belongings, the four officers having an extra eight pounds each. At first we were towed by the launch the greater part of the time, but we experienced several dangerous nips, and had to be watchful, keeping away from threatening floes. On several occasions we had to throw our belongings on the ice and pull the boats up after us to keep them from being crushed.

On August 26, we were beset in the ice, and on Sep-

tember 10, we abandoned the steam-launch and one of the boats; on September 12, another boat was abandoned, and we tried to reach Cape Sabine over the ice, carrying our last boat on the sledge. The little dingey having been previously cut up and used for fuel. But the next day a strong wind broke up the ice, and we drifted into Smith Sound on the floe upon which we were encamped. We

From a painting by Albert Operti

ESKIMO SUMMER HOME

were now on short rations, but supplemented this somewhat by the addition of seal meat and blubber from a few seals which we were fortunate enough to kill. The water obtained from the paleocrystic floe was very brackish, and as our salt was all gone, we used seawater for stewing our seal meat. This, together with the fatty seal-blubber, caused a great deal of diarrhœa, and the little opium we had taken along was fast nearing exhaustion.

We drifted about on this floe, sometimes north, sometimes south, until September 29, when a providential high

wind blew us into Baird Inlet, where we were stranded between two grounded icebergs. We ferried ourselves across the lanes of open water to the nearest land, about fifteen miles south of Cape Sabine. At this time we were all in fair health, but very weak. Rice and our little Eskimo, Jens, were sent to Cape Sabine to ascertain what was left of the English cache, and also to see what records, if any, had been left there by possible parties of succor, who might have made a landing. They returned with the sad tidings, that the Proteus, under command of Lieutenant Garlington, had sunk on July 23, having been crushed by the ice. The Lieutenant had left a record saying that all hands were saved from the Proteus, that they would cross over to Greenland and try to open communication, that the S. S. Yantic was on her way to Littleton Island, but would not enter the ice, and that a Swedish steamer would try to reach Cape York. He would at once attempt to communicate therewith, and nothing in the power of man would be left undone to send us succor. Unfortunately nothing of the kind happened, and our starvation camp at Cape Sabine was the consequence. Lieutenant Garlington had left a cache of about five hundred rations of bread, some tea and canned goods; there was also a cache of 240 rations left by Mr. Beebe in 1882, and part of the 240 rations cached by Sir George Nares in 1884, was still in good condition. Lieutenant Greely decided it would be best to move our few belongings near to these caches, and a start was made at once.

We built a hut out of loose stones and ice, using water as cement, which froze all parts solidly together. The walls were about 3½ feet high, the roof being formed by our whale-boat; its length was 25 feet and width 17 feet. Into this small hole our entire party crowded, spreading our sleeping-bags on the floor with heads to the walls, and feet toward the center, where a small passageway ran through the length of the hut. This passage was used to do our little bit of cooking, and for ingress and egress.

Our rations were cut down to the smallest possible allowance that would sustain life, and as soon as the little lake near which we were encamped froze solid to the bottom, we were put on a short amount of fluid also, consisting of

two-thirds of a cupful of weak tea twice a day. The tea ran out near the end of the winter, and we used to pick up the leaves already used at the commencement of our stay, and use them over again. Later still, we were glad to get even a cupful of luke-warm water. Many of my comrades suffered greatly from thirst, and in order to supplement the scant allowance of water, we put finely chopped ice into little rubber field bags, of which we carried a number, placed them under our clothes, later near to the skin, and the heat, of which there was so little, of our emaciated bodies would melt a few drops of the precious fluid.

The sufferings we poor mortals endured during that fearful Arctic winter—there is no spring—can hardly be described; at least I am unable, and shall not attempt to do so, but will try to convey, in a measure, a little conception of the only relief Dr. Pavy and myself were able to give to our sick and helpless brethren. The insufficient nourishment made itself felt not only in the body, but also in the mind, and great were the efforts of Lieutenant Greely and the stronger minded members of our little party to divert the thoughts of the failing ones, and to amuse them as much as possible. Of medicine we had but little, and had we given some to every person asking for it, we would not have had an iota left after the first two weeks. We managed to get along, however, as best we could, only wishing for some of the most necessary drugs, such as strychnine and hyosciamus, to strengthen the actions of the weak and depressed hearts, and for cathartics, of which there was great need. Naturally, the small quantities of food were partly responsible for our forlorn condition. While lying in our sleeping-bags, constantly tortured by a gnawing hunger, wounds and other affections would heal very slowly. Gardiner suffered during all that dark night from the effects of a felon, the affected finger refusing to heal, although we used the few remedies at our command as unsparingly in his case, as we could not later in any other.

The most serious blow came to us in the early part of November, when a party of four men started out for Cape Isabella to fetch the 144 lbs. of meat, cached there by the

British Expedition under Sir George Nares, but which was forced to return without accomplishing their errand. They found the cache all right, and proceeded "homeward" therewith, but on the road Sergeant Elison became so badly frostbitten, that they were forced to abandon the meat on a large paleocrystic floe, put Elison into the sledge, and bring him to our miserable quarters. The little party came in very much exhausted, and the condition of Elison was pitiable in the extreme. His face, hands and feet were fearfully frozen, and his agony was heartrending. We did everything in our power to alleviate his pains, and the commanding officer gave up his mattress—one of the two found in the cache of the Proteus wreck and which were always used by the sick—to make him more comfortable. I sat, or rather cowered, night after night (when I say night I mean the time corresponding to that part during which it is night in temperate zones) watching and comforting the poor fellow, and ministering to his wants to the best of my poor ability. Dr. Pavy would relieve me during the rest of the twenty-four hours, and every man in the command would at all times aid us in any little office required.

We had hopes at first, that some of the frozen parts were only superficially bitten, but our illusions were soon destroyed. Both feet slowly sloughed off at the ankle joints, and his fingers dried up and became mummified. We could entertain no thought of an operation, as any attempt to amputate would have caused a loss of blood which, in the weakened state of the patient, would have had serious consequences. We were obliged, therefore, to confine ourselves to keeping the wounds clean, and to effect that purpose I dressed them daily. This was not an easy matter, since water was such a very scarce commodity, and had to be used most sparingly. At first I used a little borated cotton and the few bandages we had taken along for emergencies, together with the one pound can of carbolated vaseline, and the little carbolic acid at my command. All this was employed as judiciously as possible, but as there were other small frostbites among my comrades, besides several sore fingers which needed dressing, my supply became exhausted very quickly. The commanding officer then set apart all the lard, of which we had found a couple

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THE LADY FRANKLIN BAY EXPEDITION, COMMANDED BY LIEUTENANT GREELY

of cans in the wreck cache, for medicinal purposes. This I mixed with the little salicylic acid which we had, and with the mixture I attended to the injuries.

One of the serious questions confronting us was, how to get the material to dress the wounds. We had found a number of shirts in the clefts of the rocks near Cape Sabine, left there by Lieutenant Garlington's party; these shirts had been wet and were frozen to a solid mass of ice. I beat off the ice as much as possible, then placed them underneath my clothes, and thus dried them for use. The aggravated state of my rheumatic troubles to-day is probably a direct result of this necessary action.

While in this precarious state, weakened in body and mind with but a couple of hours each day when we could afford the faintest excuse for light, by burning a little seal-blubber in a lamp, improvised out of a tomato can, with a piece of an old woolen sock or undershirt for a wick; or by burning a candle manufactured out of stearine found in the British cache, with a piece of old rope as wick, there would occur discussions which seemed full of animosity, and which have since been described as "bickerings" and "fights." I beg the reader to imagine himself in a similar position, if such imagination is possible, and he will readily understand that they were only outbursts of a weakened, tortured mind. In reality every man of our forsaken little party helped his weaker neighbor at all points, where such aid was possible. The great efforts that were made to improve our poor larder cannot be realized by the world. Our hunters, Sergeant Long and the Eskimo, aided later by Sergeant Frederick, certainly worked wonders, and had it not been for the providential appearance of a bear, and its fortunate killing by Long, none of us would have lived to tell the tale.

Our dear comrade Brainard worked incessantly for the good of all, dividing the scanty food with equity, going out during the coldest and stormiest weather to catch so-called shrimps, in reality nothing but sea-lice, which helped greatly to fill that aching void in our gnawing stomachs.

Rice, together with Frederick, made another effort to secure that much-coveted meat from Cape Isabella, abandoned on the first attempt, but cruel fate carried away our

faithful Rice, dooming him to perish from cold and exhaustion. Good little Frederick covered his remains with snow and ice, and alone made his way back through the dreary, lightless ice-waste.

The stronger would always cheer and support the weak. Dear, good Israel, although bodily very weak, would invariably have a cheery word for his neighbor, who might be physically a little stronger, but over whose mind dark forebodings of approaching end would cast a gloom. Lieutenant Lockwood, proud of his achievement of having reached the farthest north, would mournfully talk of his loved ones at home, and for an hour at a time would recount the good things to eat in our own " God's Country," as we used to speak of it.

The first appearance of the grim visitor was on January 18, when Sergeant Cross, our engineer, died. Cross was quite weak for some time, and showed some scorbutic signs, the only really pronounced ones during our stay. Cross was physically the weakest man among us, and having used liquor and tobacco in rather large quantities during the greater part of his life, his constitution was weakened. This first death had naturally a somewhat depressing influence, but Lieutenant Greely made some judicious remarks and announced a slight increase in the ration, which was, however, cut down again in a day or two, and one man would try to show his neighbor how little he thought of this sad affair, and point out the few chances of life we still had. So by cheering one another, we were really in a better state of mind that evening than before.

After this, although all were very weak, no death took place until April 5, when Frederik J. Christiansen, one of our faithful, hard-working Eskimo dog-drivers died of starvation. After that we had four other deaths in rapid succession, when the bear, sent so opportunely, gave us a number of meals of fresh meat, and for a time stayed the ravages hunger had created. It must not be imagined that we set to feasting at once, since we only allowed ourselves eight ounces of the bear meat per day, and for this the very little other meat yet in our possession was withdrawn. The fresh meat, however, with the consequent improvement in the mind, renewed hope for game, and through that,

worked wonders for a short time, when life again began to ebb away, and the man with the scythe commenced anew to reap his harvest.

Most of my comrades during those days of misery died there, and the majority of them died supported by my own weak arm, since in their last moment I would always, as was my duty, try to ease them, and help them as much as was in my poor power. A stronger will than ours decreed that nineteen out of the twenty-five strong, healthy men, who had dared everything in the interest of science, should pay the cost with their lives, and that only six of us should see the land of our love once more, kiss our dear ones, and be greeted by a hearty welcome from our friends. We returned, but no one of us the same healthy, vigorous man he had been on leaving, all being more or less invalided. Death, at most times so much dreaded, was really a friendly visitor to some of the good men called away, since it brought peace and release from all pain.

Our final days at Cape Sabine were spent in misery and suffering. The last food had been consumed, and in our necessity we were forced to eat our sealskin clothing and boots. Fortunately, it was now continuous day, and warm enough to get fresh water out of little pools, made by the slowly melting snow. We also were able to crawl about adjacent rocks, and gather lichens (tripe de roche), the nutritive value of which may be questioned, but they aided to fill up. As part of the ground was free from snow, we could gather the roots of saxifrage, which we used for fuel, and which would, by constantly blowing on them, give quite a little heat, enough to singe the hair off our fur clothing, and partly roast it so that it could be ground with the teeth. It would also suffice to heat water to almost the boiling point, and in this we would parboil parts of our skin-boots, so as to permit of their mastication. All this was very poor stuff on which to feed the sick, but since it was all we had, we could do no better, and our good Elison lived through it all, getting the lion's share to the last. Although without feet, and practically without hands, his face greatly disfigured by scars caused by frostbite, yet he was otherwise physically the strongest. As it seemed that he might survive us all, after our last pair of boots

and our last pieces of fur had been divided, his share was placed next to his sleeping-bag, and a spoon was fastened to his right hand with strips of clothing, so that he might prolong his life if possible. Strange to say, that, although Elison had been, since the early part of November, practically lying on his back all the time (he was unable to turn over alone), without a change of underclothing or a wash, his body was yet clean and only during the last few days did any signs of bed-sores appear.

The deaths from starvation seemed to be without suffering during the last moments, and all, save probably two, lost consciousness, hours before breathing their last. The death of Gardiner was especially touching, as he held in his hands a little tin-type picture of his dear old mother, and one of his young wife to whom he had been wedded only shortly prior to joining the Expedition, and would fervently gaze upon them. His last words were: "Mother, wife," as if he were bidding them farewell. Lieutenant Kissling-bury became unconscious one day about 9 A. M., but seemed to awake from his lethargy about 3 P. M., when he asked for water, and feeling his end to be near, he died singing the Doxology. The last death to occur at our starvation camp was that of Private Schneider, who died on June 18, just four days before our rescue.

On June 20, a heavy wind sprang up and increased in velocity on June 21 and June 22, keeping us in the tent. To our misfortune the tent blew down on us in the small hours of June 22, and we lay helplessly pinned under it, patiently awaiting the end. In the evening our poor hearts were gladdened, and our pulses forced to throb faster and stronger again, by the sound of a steam whistle, faintly, but distinctly heard in the distance. Brainard and Long slept in an addition to the tent on its south side, and they being able to move, went out to reconnoitre. Brainard returned shortly, saying: "There is nothing to be seen; it must have been the wind blowing over an empty tin can."

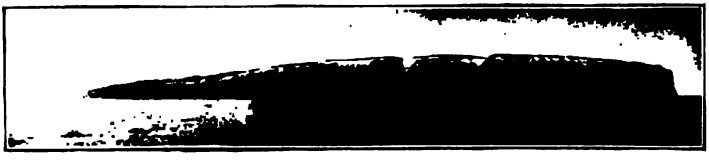
While discussing the pros and cons of a ship being near, and while I was busying myself with Connell, who was semi-conscious, we heard shouts from outside. In a few seconds our rescuers, who had been gallantly led by that hero of heroes, Commander, now Admiral, W. S. Schley,

were pulling at the tent, but, not being able to get in, a knife did the work in an instant, and through the opening thus made, Lieutenant J. C. Colwell, U. S. Navy, and Captain J. W. Norman, the ice pilot, thrust forth their hands. In one of these I spied a few biscuits, or hard-tack, which I ravenously grasped, and passed on to my comrades, reaching for more; but Lieutenant Colwell was careful and permitted us to have but little until the arrival of the surgeons, Drs. Green and Ames, through whose skill and combined efforts we were soon so far restored as to permit of our removal to the vessels, U. S. S. " Thetis " and " Bear," where we were most tenderly cared for, and where we soon gathered new strength and fresh interest in life.

Poor crippled Elison was still alive, and most tenderly cared for, but as his feet and fingers had sloughed off by nature's own work, the wounds became inflamed. As soon as stronger food caused his blood to flow more rapidly through his body, an amputation of the affected limbs had to be resorted to, which was successfully accomplished; but there was not enough strength left in him to withstand the shock; he died, July 8, on board the " Bear," in Godhavn Harbor, Disco Island, Greenland, after having patiently suffered during eight months such torture as few persons ever suffered before.

It was not until we had been for some little time aboard the relief ships that we were sufficiently recovered to take a real interest in the details which led to our timely rescue. I have frequently been asked the question as to what our feelings were when we knew we were saved. I do not believe that, at that moment, there was much feeling in any one of us; and this can be the more readily appreciated when it is understood that perhaps forty-eight hours longer would have been too late for the rescuing party to find one man alive. We were dazed, stupefied, dying of hunger and weakness, and, expecting only death, were patiently awaiting its approach. The sudden and unexpected arrival of those who were to give life back to us came as a flash of lightning from a clear sky. None of us was enabled to realize the exact nature of events transpiring about us; we were too weary to feel or show emotion, and the dread of death was long since passed.

But when, having gained something of our strength through tender care and proper nourishment, we realized how opportune had been the coming of our rescuers, we listened eagerly to the recital of the history of the relief expedition, from its setting forth till its arrival at Cape Sabine. We looked forward too, to our home coming, and, in the joy which filled our hearts when we stepped once more upon the land we loved, I think much of our long period of suffering was forgotten.



AN ARCTIC BEAR HUNT

FRANCIS LONG.

Francis Long was born in Wurtemberg, Germany, Jan., 1852. In 1881 joined the Lady Franklin Bay Arctic Expedition under Lieutenant Greely. Was appointed the hunter of the expedition. Mr. Long was one of the survivors rescued at Cape Sabine in 1884. In 1901 was a member of the Baldwin-Ziegler Polar Expedition.

FRANCIS LONG

AN ARCTIC BEAR HUNT

By FRANCIS LONG

SHRIMPS, bacon and sealskin stew, all in small quantities, had been our bill-of-fare for nearly a month; then we found there was not a full round of rations left. More than half of the men in camp were incapable of work, but that mattered little, for there was scarcely more to do than one or two could easily take care of. We were constantly drowsy from the steady cold, but could take but little sleep at a time; two hours was all. Sleep was sweet, but in that lay our greatest danger, save when it was found that our supply of the shrimps and fresh sealskin was exhausted; then starvation as well as death from over-sleep stared us in the face. So it was that we took turns in keeping guard, that one might be always awake and arouse the others at the end of every

two hours. When we saw almost certain death from starvation ahead of us, it became the general thought that perhaps, after all, it would be better to go to sleep together and end it painlessly, unconscious of the bitter cold and the gnawing pangs of hunger.

The camp was well stocked with guns, ammunition and cooking utensils; I had always believed that the frozen North abounded in certain game; that there were fish in the open water, and seals and polar bears in plenty. But I had not reckoned rightly; had we been cast away on a raft in mid-ocean we could scarcely have been more cut off from all chance of obtaining fresh provision. There was no game, though our rifles stood loaded; no fish, though many weary hours we spent with lines dangling in the water; no living thing save ourselves, only stretches of ice and snow, the bitter cold and the solitude of the grave.

This was the situation, and sometimes we gave up to despair—I perhaps, more keenly, for I was the hunter of the camp, and while the others remained behind, hoping against hope, I traveled back and forth over the ice, praying that some live thing might come within reach of my gun. Day after day I dragged myself homeward, but always with the same answer to my companions' anxious looks: "*Nothing, not even a track in the snow!*" And so, day after day, until only twenty-four hours stood between us and starvation.

That day, feeling that the task was useless, I had set out with my gun across the ice and gone almost as far as my strength would permit, when I chanced to come upon a wide stretch of snow. More from force of habit than through hope of being rewarded, I looked carefully across the level field of white. Then my heart jumped so that I thought it would tear loose from its fastenings; right in front of me, showing as plainly as a map marked on the palm of one's hand, were the tracks of a bear!

The sight of that broad imprint upon the snow gave me new strength. I think I forgot how cold it was, that my knees were ready to give way under me, and that my fingers were so numb I could scarcely hold my rifle. If I shot a bear we were saved from the terror which stared us in the face; I could almost hear the cheers of my comrades and their fervent "Thank God!"

It seemed that for hours I dragged myself over the ice and snow, trembling through fear that the tracks might disappear; then my strength left me and I knew that I must return to the camp. What use to come upon the bear when I could not raise my gun, or must lie down with no one to wake me when the two hours had passed?

It was late in the afternoon when I got back to camp and that time I had another answer to the questioning looks. I had just gone over, for the tenth time, my story of having discovered the tracks, when one of the men exclaimed suddenly:

"Look! there is Brainard coming down Cemetery Ridge; I didn't know it was in any of us to run so fast."

Sure enough, there was Brainard, who had gone to the shrimping grounds, coming down the ridge as fast as his weak legs would carry him; he fell once and rolled over on the ice, but was up again and began shouting to us. His voice was so weak we could not catch his words, and when he reached the camp he was utterly exhausted.

"What is it, Sergeant? What have you seen?" asked Lieutenant Greely.

"Bear! bear!" answered Brainard in a choking voice, and made a feeble effort to rise. I was bending over him by this time with my rifle already in my hand.

"Where, Sergeant; where is the bear?" I cried, my nerves tingling and my body trembling with excitement.

"There!" answered Brainard, and he pointed to the ridge. "He was close behind me; he was following."

I was off toward the ridge in an instant. I had tracked the bear during the greater part of the afternoon but without success; now Bruin was walking right into camp and I had no idea of neglecting so glorious an opportunity.

From the top of the ridge I could see nothing of the bear. He had evidently been further behind than Brainard thought and had not followed him to camp. He was somewhere out there on the glittering ice, perhaps hesitating whether to examine us more closely, perhaps loping off for new fields and forever beyond our reach.

I hastened down to the camp to find that some of the men, the weakest of the party, were for arming themselves and spreading over the icefield and among the icebergs.

To this Lieutenant Greely was opposed; it would be the height of folly. Some of the men could have gone no further than the top of the ridge, and hardly one could hold a rifle steady enough to hit the bear even if they came up with him. Then the excited fellows turned to me; I was the hunter of the party and I *must* get the bear.

It did not require the appealing looks of the famished men about me to urge me to my utmost efforts. I resolved to get the bear did I travel over the entire stretch of ice-field; nothing should stop me but the open water or death from sheer exhaustion. One thing was certain; the bear was in our neighborhood, for Brainard had seen him, and unless frightened he would not retreat too far from the shrimping ground. My plan of action was quickly formed; the surest, I thought, which promised success. Bidding Jens, the Eskimo, follow me, I started up the ridge again, for in that direction Brainard had seen the bear.

My hopes lent me strength, but my feet seemed like lead as I climbed the steep ascent. I neared the top, with the camp behind and my anxious companions looking after me, every hope centered and fixed on the rifle I carried in my hand. I slipped on the hard ground, recovered myself and gained the summit of the ridge; three hundred yards away, an ice-covered rock stood out against the horizon, and from around a corner of this rock protruded a long white nose—it was the Polar bear.

At the same instant the animal caught sight of me, backed away and went lumbering over the ice in the direction of the open water.

"Jens," said I hastily, "take the course to the left and go around the ridge; keep well to the west so as to head her off from the water, I will take care of the east."

The faithful fellow understood the plan and set out at once, while I crawled over the rocks and saw the bear a long way off still on the run. Once or twice he looked back and then, as though satisfied that he was pursued, continued his flight. Keeping off to the right I made as good time as possible, crawling, sliding up and down the icy slopes, feverish with fear lest the bear reach the water first. It seemed as though every possible obstruction lay in my way and I could see the Eskimo was having as hard a time of it.

Looking back it seems incredible, but I actually went ten miles in the circle followed to head off the bear. I knew that when he got over his fright he would stop running, and it was of the most vital importance to keep well out of sight. Of those ten miles little was covered on the run; most of it was gained by crawling, two and a half hours of stumbling, slipping, falling and struggling to one's feet again. But it never entered my head to give up; I had started out to get the bear and I thought of the disappointed and soul-sick men who were awaiting my return.

Finally the long chase drew near an ending; I had climbed a little hill and, having fallen, was struggling to my feet, when looking ahead I saw bruin not a thousand yard away. He was sitting on his haunches within thirty yards of the open water.

We were not yet sure of him, but his back was toward me and the Eskimo was approaching from the left. With the utmost care we crawled forward over the ice, approaching nearer and nearer to our prey. Suddenly, when we had gone half the distance, the Eskimo raised his rifle and fired; it was poor judgment, for the bear was still many yards away and I doubt if the bullet touched him. I did not wait to see; it was the last chance, and throwing caution to the winds I dashed recklessly forward straight at the animal. He, in turn, got upon his legs, wheeled half-around and seemed to hesitate whether to run, or to stand and show fight.

Excitement gave me strength and I ran harder than I had done for months; it took all my resolution to resist firing while the bear was yet far off. He did not run, only turned his head and blinked at me and continued doing so until I came within about two hundred yards. Then I stopped, threw off my cap, hurled my mittens upon the ice, and took a long deliberate aim; I have shot at a target and been less cool.

The echo of my shot went rolling over the ice-field; over the barrel of the gun I saw the bear rise upon his haunches, his fore paws tore the air, then with a great lurch he swayed and went down, a furry heap of dirty white upon the ice. Jens uttered a shout of triumph and ran forward, but I took the precaution to put two more bullets into the beast's head before laying aside my rifle.

It was half-past 8 o'clock, and the distance to camp was three miles in a straight line.

"Jens," said I, a lump sticking in my throat, "we will go home and tell the boys there are four hundred pounds of meat waiting for them out here on the ice."

There was little sleep in camp that night and we did not mind the cold so much.

"Extra rations!" announced Lieutenant Greely, "there's the meat and the scraps will make a splendid stew."

Extra rations, indeed, we had next day, and the bear meat held out just long enough to keep us living until the rescuers found us; but without the bear we would have died weeks before.

SUPERSTITIONS OF THE ESKIMO

MIDDLETON SMITH.

Middleton Smith was born in Bainbridge, Penn., March, 1847. Received the appointment to the Point Barrow, Alaska, Expedition, as naturalist and observer, and was absent at Point Barrow, 1881 to 1883. He made collections in natural history and ethnology for the United States National Museum. Upon his return to the States he assisted in editing the reports on the proceedings of the Point Barrow and Lady Franklin Bay Expeditions.

MIDDLETON SMITH

SUPERSTITIONS OF THE ESKIMO

By MIDDLETON SMITH

AT Point Barrow, Alaska, the most northern point of the American continent, are two settlements of Eskimo, whose sphere of existence is confined, through superstitious fear, within an area of several hundred square miles. Very few, if any, ever journey so far south as the Arctic Circle or beyond it. Probably they never saw a white man before the Blossom's barge arrived at Point Barrow, in 1826. Previous to 1881, they were for the greater portion of each year completely isolated from civilization. It was only when, during the summer, a United States revenue marine cutter, or an Arctic whaling vessel, reached the Point, that the Eskimo of these northern Alaskan settlements would get a glimpse of civilized life. But they had the "kablunah," or white man, continually with them for two years from the fall of 1881, when the United States Government established at Point Barrow a permanent station, for the purpose of coöperating in the work of circumpolar observation proposed by the Hamburg International Polar Conference. During the occupancy of the station by the expeditionary force, the most friendly relations were established with these people, which made it possible to obtain from them, through trade, a collection of articles illustrating the arts and industries, and to study their life and superstitions.

The population of these two Eskimo settlements was 180. There were 54 families and about one-half as many "igloos," or permanent dwellings. At the Cape Smyth settlement, where the station of observation was established, there

were 45 men, 52 women, 27 boys, and 14 girls. From the measurements and the weights of the adult Eskimo of the two villages, it appears that the traditional estimates of Eskimo stature and avoirdupois will need revision. The tallest man was 5 feet 8¾ inches; the shortest, 4 feet 11 inches. The tallest woman was 5 feet 3 inches; the shortest, 4 feet ½ inch. The average height of the men was 5 feet 3 inches; of the women, 4 feet 11 inches; of both sexes, 5 feet 2 inches. The heaviest man weighed 204 pounds; the lightest, 126 pounds. The heaviest woman weighed 172 pounds; the lightest, 100 pounds. The average weight of the men was 153 pounds; of the women, 135 pounds; of both sexes, 146 pounds. Of the men there were few under 5 feet 4 inches, the army regulation height, and very few under 140 pounds. The majority of the women were over 5 feet in height and weighed 130 pounds or more.

These Eskimo differ also from the traditional Eskimo in other respects. The lines of Bancroft in his "Native Races of the Pacific States" representing the "dozing" Eskimo "rubbing his eyes" and "crawling forth" when the long arctic night is ended, have no application whatever to the Eskimo of northern Alaska. It frequently happens that there is no other time during the year in which these people are so actively engaged in the struggle for existence as during the arctic night. This is their principal "sealing season," and the hardy Eskimo, instead of being found asleep in his iglu, may be seen miles out upon the ocean ice looking for "breathing holes," "ice cracks," and "leads" or "lanes" of open water, where he may shoot or spear the seal as they come up to the surface to breathe, or may capture them in nets. If the sealing be good, it makes no difference to the Eskimo whether the temperature is at zero or 50 degrees below, whether the wind is merely a gentle breeze or is blowing a gale, so long as it is an "on-shore" wind, so that there be no danger from the breaking away of the ice on which he is staying; he stands by his "scalery" and fishes his nets. The flesh of the seal constitutes three-fourths of his food supply and the blubber furnishes the principal means of illuminating his iglus and of bartering for furs with the people of the interior. Healthy, strong, and sinewy, therefore, as he is,

he must put forth extra strength and endurance in the struggle against the rigors of frost during the winter sealing season, for if he be foiled in his attempts at capture and the "output" be small, he must suffer in consequence. An Eskimo being asked whether his hands did not get very cold and the night seem long while he was engaged in fishing his nets for the capture of seal, replied, that if he took a few seal his hands got very cold and it required a long time for the star Arcturus to move from the northern horizon, where it appears in the evening, to the southern horizon, where it is seen in the morning; but if he took many seal he did not mind the cold and Arcturus passed too quickly to the south. It was a common occurrence during the arctic night for these natives to come with badly frost-bitten faces to our station from their sealing grounds, where in the deceptive flush of success they had remained too long, to receive at the hands of our surgeon a gratis and grateful application of iodine to ease their pain and prevent the frost-bitten sores from spreading. It is a mistake to ascribe to these Eskimo the quality of drowsiness, sleepiness, or inactivity.

Unlike the people of tropical zones, where, Edenlike, the sheltering tree drops food, and the little nourishment essential to life may be obtained by only stretching forth the hand and plucking it, the Eskimo must maintain a continuous struggle for the necessaries of life. At the close of the winter sealing season, which is about coincident with the end of the 72 days arctic night, they journey into the interior for caribou and fish, and for about two months, February and March, while engaged in the caribou chase and in gill-net fishing through the river ice, they live in snow houses, temporarily and rudely constructed for the occasion.

Fishing gill-nets through holes cut in the river ice, from six to eight feet in thickness, while strictly speaking it cannot be considered commercial fishing, since with the Eskimo it is done for home consumption only, yet cannot by any possible construction be classed as pleasure fishing. Hunting deer in this level country, wholly devoid of trees and shrubbery, where the caribou can see his would-be slayer when he is miles away, and can scent him equally far

if he be to the windward of him, is no idle pastime. When a caribou is finally sighted, after perhaps a long and tiresome tramp, the Eskimo, in order to get within rifle range, must run the caribou down. This may seem incredible, but it is nevertheless true. When the caribou first sees the hunter approach he starts up and runs a short distance and then resumes his feeding by pawing the hard-crusted snow off the moss which furnishes his sustenance; but seeing the Eskimo in a dog-like trot still pursuing him, he again starts up and runs a short distance and again resumes his feeding. Each succeeding time that he starts and runs he shows signs of increased uneasiness, and finally, in order to find out what kind of a being his pursuer is, he will swing around towards the leeward to take his scent. Seeing the caribou veer from his course, the hunter will alter his own course so as to head the deer off and keep to the leeward of him, and in this way get within long rifle range and open fire.

Fish and caribou, the luxuries of the Eskimo spring diet, when taken under such conditions, are dearly earned and ought to be cached and apportioned during the year in homeopathic measure, as entrees to the regular diet of seal meat. But arctic hunger is not cognizant of any future want. As an illustration of the eating capacity of the Eskimo, I would relate the following. Ten hunters with their families or assistants, numbering all told 30 souls, have been known to take during the short hunting season 200 caribou and 2000 pounds of fish. They were absent from the coast on this hunting and fishing tour two and one-half months. Upon their return to the coast an inventory of what remained of the "output" showed but 30 caribou and 500 pounds of fish, and they had left nothing cached in the interior. These 30 Eskimo, therefore, consumed within two and one-half months 170 caribou, which amounted, when dressed, to about 17,000 pounds, and 1500 pounds of fish, or a total of 18,500 pounds of meat. This gives an average per man of 246⅔ pounds per month, or 8⅔ pounds per day. This average may seem excessively high and may tax one's credulity, but there must be taken into account the facts that the diet was purely an animal diet, that during these months about the coldest weather of

the year was experienced, that this party was almost entirely without any artificial heat whatever, that the violence of the exercise in the exciting chase produced ravenous appetites and that their predominant thought was food.

It may be incidentally mentioned in this connection that the personnel of the Point Barrow Expedition consumed about one and one-half times as much food, and perhaps three times as much water while in the arctic region as would naturally satisfy their normal hunger and thirst when in the States. And, had the sole object of the expeditionary force been engaged in the chase under Eskimo conditions, their average amount of food consumed would no doubt have compared favorably with that given above for each Eskimo.

After the return from the caribou chase the Eskimo begin making preparations for whaling, and by the first of May they are generally upon the ice looking for whales. During the whaling season they live principally in their boats, as their superstition interferes with the building of ice-houses upon the ocean ice and forbids any sleeping, heating or cooking outfit or even a change of clothing. Any such comforts or emergency preparations on the part of the Eskimo would greatly displease the whales and cause them to pass into the Arctic Ocean far out from the Alaskan coast. The stone spear, which requires considerably more force to penetrate the whale's skin and is less sure of success than the iron or steel spear, must be first used by these people in striking a whale, simply because their fathers and grandfathers before them used stone toggle harpoons. Whales, which otherwise might be captured, are lost to the Eskimo by his not using, through superstitious fear, the steel harpoon. After they succeed in fastening to a whale they can, without offending their forefathers, use the modernized harpoon. It may be pertinent in connection with this subject to mention the fact, which is perhaps not generally known, that the modern harpoon used by our whalers to-day is fashioned after the style of the primitive stone toggle harpoon of the Alaskan Eskimo. The harpoon irons used by our whalers when they first went into Bering's Sea and the Arctic Ocean would not hold, and in consequence a large percentage of the whales that were

chased, which otherwise might have been captured, escaped their pursuers.

At the close of the whaling season, which is the first of June, preparations are made for a journey along the coast to the east of Point Barrow to meet and trade with the natives of the interior of northern Alaska who, during the summer time, come down the Meade and Colville rivers to the coast.

Thus the life of the Point Barrow Eskimo is spent in one continuous round of hunting, fishing and trading under conditions at no time pleasant and frequently under the most adverse circumstances; yet, strange as it may seem, their perseverance never flags, their peaceful disposition never gives way to ugliness, their good nature to anger, nor does their overflowing mirthfulness ever forsake them.

The Eskimo of Point Barrow are the most cheerful and mirth-loving of any people found on earth. They are never morose, gloomy or dismal, as might be thought would be a result of the rigors of their inhospitable climate and surroundings. They are a good people. Serious family quarrels, such as result in bodily injury, are of very rare occurrence among them, and it may be questioned whether, previous to the introduction of alcoholic liquor into this region, such quarrels had occurred at all, for at least, several generations. The taking of human life is resorted to only on the very rare occasion when any one of them becomes dangerously insane, and then it is only after a general council is called and a unanimity of opinion prevails, that such a person is deprived of his life. Harmless insanity is suffered by this people until natural death ends the life of the Eskimo thus afflicted. Unjustifiable homicide may possibly occur, but if such be the case, I think it is safe to say that the number of instances will not average one in a generation.

They never abuse, scold or punish their children of either sex, and, on the other hand, the children are obedient to their parents or guardians, and in their play, their work, or their idle moments never quarrel among themselves. The Eskimo ill-treat no one. The wife is shown the consideration due to her sex so far as Eskimo superstition will allow. During her period of confinement she must

occupy exclusively separate quarters. If this occurs in the summer she will live in a tent, but if in the winter she will have to move from the family iglu, in which the temperature is about 45 degrees Fahr., to a snow house, where the temperature will necessarily be at about the freezing point of fresh water, and her furniture will consist only of caribou skins, a cup to heat water in, and a stone lamp. She will receive frequent visits from her attendant and

CHILDREN OF THE WHITE WORLD

others who kindly administer to her wants, but for a time no one is allowed to enter her snow palace. This custom obtained with their hardy ancestors and must, therefore, be sacredly observed to-day.

Aside from the vices which these Eskimo have acquired from civilized people, and the evils which result from some of their manifold superstitions, they need no missionary or reformer. Nothing is ascribed by them to the pleasure or displeasure of an infinitely good being, but they attribute

ill-luck, disaster, sickness and death to an evil spirit whose presence they try to frighten away, or whose wrath they endeavor to appease. Many of their superstitious rites and practices are harmless in themselves. Some result in good; others in disaster. The traditional Eskimo never washes himself, but the Point Barrow Eskimo would expect great disaster to befall him if, just before engaging in the caribou chase, he did not wash from his person the scent, dirt, and grease accumulated during the winter's sealing; or if, just before going out on the ice in the following April to capture whales, he did not wash off the scent of the caribou chase.

When a death occurs in the village the women are not allowed, from sunset to sunrise, either to make or repair garments or to do sewing of any kind, except in the most urgent cases, when the work must be done while sitting within circles inscribed by the point of a knife upon the floor of the iglu.

A woman who during the winter has lost a child by death is not allowed to go on the ocean ice during the Eskimo whaling season, for if she were to go, the whales would either not come at all or would pass in their run to the north and east, far from the shore ice. This restriction may deprive a family of a possible share in the season's catch.

The umiaks, or large skin-boats, when prepared for whaling are decorated with crow skins, eagle beaks and claws, the skin of ermine, and little bags containing earth from the grave of some old-time noted whaleman, for the purpose of ornamentation and also as luck-charms. After the umiaks are ready, all of the natives are restricted from pounding on iron, chopping wood, or digging in the earth, and all their movements must be made in a quiet manner. The umiak must be launched from the ice, bow first, otherwise it would be impossible to capture a whale during the entire season.

A whale must be first struck, as heretofore observed, with the stone toggle harpoon, and in consequence some whales escape, which, if struck with the iron harpoon might be captured. Each captured whale, before being cut up, must have a few drops of fresh water from the tundra poured on his head, and some magic words spoken to as-

sure future luck and success. The necessary fresh water for this purpose is carried on the whaling expedition in bags made from seal flippers. To prevent it from freezing, these bags are placed between the outside and inner jackets of the men above the belt, and near the small of the back. Every seal taken on the ice, whether by spearing, shooting, or netting, must be sprinkled with fresh water before it is taken to the land. If a wife should happen to see her husband coming across the ice with a seal from the hunt, she would immediately run with a cup of fresh water in order to pour it on the seal's nose, before it is brought upon the land. After the seal is cut up and eaten, its bones, no matter how hungry the dogs may be, even if they are on the verge of starvation, must all be returned to the sea, or ill-luck will surely follow.

When the Eskimo goes to the banks of the river in the interior to hunt caribou and net fish he makes an offering of a little tobacco to the "tunah," or spirit of the dead, for good luck, and then sets his nets and awaits results. His superstition will not permit his hunting the same day he sets his nets, nor allow him to remove the fish from the net the day he hunts. Upon such an occasion his wife only can fish the net.

While I was stationed at Point Barrow, Captain Herendeen, interpreter and storekeeper of our expedition, once made a three weeks' trip into the interior of the country, for the purpose of hunting and fishing. When he returned he told the incidents of his trip, one of which furnishes a good illustration of the kindliness and loyalty so generously exhibited by the Eskimo attendants. The captain had gone, in the excitement of the deer chase, so far from his camping ground that night overtook him many miles from his tent. On account of the darkness and the level character of the country it would have been folly for him to attempt to find his way back, for the chances were that the more he would walk, the farther he would stray away from the tent, or else that he would describe a wanderer's circle about it. He wisely concluded to wait for daylight, whereby he might be safely guided tentward. The night was cold and windy and he was obliged during the entire night to keep up a brisk walk within a limited area, in order to avoid being

OFF THE ALASKAN COAST

frozen. The aurora, as in mockery of his sufferings from the cold, danced in the heavens above him with undiminished brilliancy for the greater part of the night, and occasionally sent its crimson streamers to the zenith, forming coronas, most beautiful to behold. Day finally dawned and he began his homeward march, but he had not gone far before he saw his Eskimo ally coming with a dog team in search of him. The faithful Eskimo showed both intelligence and forethought, for he brought with him blankets, change of clothing, and food. He also showed more than ordinary concern about the welfare of the "kab-lu-nah," for if any evil had befallen the captain, the Eskimo would have been denounced by his own people as "a bad man."

While the following facts pertain especially to the Eskimo on the Siberian coast, yet I know from personal observation that the kindly and self-sacrificing spirit shown by these people pervades all the Eskimo of arctic Alaska.

Late in the year 1866, the ship Japan, Captain Barker commanding, while trying to make her way out of the Arctic Ocean, during a severe snow-storm and gale, was driven ashore on the north side of Cape East. The officers and crew were rescued by the coast Eskimo, who at once distributed the shipwrecked persons among the villages

along the coast, and kindly shared with them, during the long winter, their igloos, clothing, and food. As the summer of 1866 had been very unpropitious for the capture of the walrus, and the ice during the winter of '65 and '66 was unfavorable to the taking of seal, the food-supply of these people was unusually small, and to take care of and feed a whole shipwrecked crew of 32 men, at a time when they could scarcely obtain provisions sufficient for their own families, was a very trying task and taxed their patience almost beyond human endurance. When probable starvation stared them in the face, a council of the little settlements was called to see whether they should endeavor to keep these strangers through the winter or to simply save their own people. It was decided in this council, that as the strangers were thrown, by no fault of their own, upon their shores and, as it were, placed under their care, they should have an equal chance for life with themselves. Captain Barker of the Japan testifies that the Eskimo women in apportioning the food among his men frequently shed tears on account of the smallness of the amount, and often would increase the same by adding portions of their own shares. And all through the long arctic winter, the strangers who were so helpless and entirely dependent upon these people for the food, clothing and shelter which should enable them to survive the arctic frosts, were given the best food that was to be had and the largest share. Those of the crew who were assigned to distant villages also testify to having been treated with the utmost kindness and consideration. Captain Barker did not learn, until the plenty of the following spring made further fear unnecessary, that there had been any question among the Eskimo in regard to their supporting him and his crew through the winter.

A few years previous to the loss of the Japan, the bark South Seaman was wrecked, at almost the same place and under similar circumstances, and her officers and crew were rescued, sheltered, clothed and fed by the Cape East Eskimo. Could the men of the ill-fated "Jeannette Expedition," when they landed on the north Siberian shore have reached an Eskimo settlement they would have had no story of suffering from exposure, of starvation and of death, such as was related by the few who actually did survive.

The Eskimo are, generally speaking, an industrious people, healthy and strong, harmless, kindhearted, very mirthful and rather good-looking, the children being always pretty and some of the maidens beautiful. Each man has a wife and the couple are dependent upon their offspring for support in their old age. They are not a very prolific race and we see some aged couples childless. Such couples adopt parentless children and in extreme cases induce parents who have many offspring to sell them a boy or two. The parents' affection for their children is very great and they are very kind to them. I never heard of a parent striking or speaking a cross word to a child. The children are allowed to do pretty much as they please, but whenever they are told to do anything they do it at once, and take as much interest in it as they do in their games. They never quarrel among themselves, and while at play may be heard their merry and hearty laughter. They are all merriment and a scowl or frown never shows itself upon their faces. With but few exceptions, the men treated their wives, while we were among them, with the greatest consideration.

Among the amusements of the Eskimo may be mentioned their public dances. Upon some of these occasions they dress in white, and blacken their faces. Their skin jackets and trousers are turned inside out and scraped and whitened with chalk. A feather may adorn the hood of the jacket. The dance is accompanied with monotonous crooning and noises made on drums which may be likened to our tambourines. Each and every dance has its special object. The first one given during the winter of 1882 was a sort of " surprise party " dance. They made presents to one another. A couple took the floor and, after a short dance to music, the ceremony of presenting some object to the lady took place. Another couple went through with the same performance, and was followed by another, and so on until the presents were disposed of, and the ball ended in a general dance. This dance furnished an occasion for the natives to fulfil their promises made during the year. They would feel very sorry if they could not fulfil these promises. A few days before this dance took place, a young native, U-gah-lu by name, came to our captain and

said he had promised to Miss Po-cas-si-nah some "pe-lah-vah" (flour) and had not the wherewithal to redeem his promise, and he pleaded with the captain to help him out of his dilemma. He said he could not choose anything else to take the place of flour since it is so highly prized as a luxury. The boy got the flour and the girl was made the recipient of it at the ball.

The object of the second dance during this winter was to frighten off the Eskimo "devil." They firmly believe in the existence of this personage, and at night they always carry a long knife to protect themselves against him. Some of them claim to have seen the devil and describe him as a winged man, very savage and horrible to behold. They believe that by dancing and shouting around a fire and pouring water upon it and firing rifles into the ashes the devil will either be killed or badly wounded, and will pass away with the smoke.

Their third dance had for its object the "blessing of the sealing and whaling implements." During this dance all the Eskimo boat-captains had seats in the orchestra and a select few did the drumming and talking. The dance came in at the close of the exercise, but was of secondary importance. Upon their return from the deer hunt they have a dance, and also upon various other occasions.

For sickness they take no medicine, but the physicians assemble in the sick chamber and beat their drums and ab-ba-bah' (howl) to the devil to go out of the sick person. If in the course of a day or two the patient does not improve under such treatment, a knife is used by the wise doctors, and surgery is performed. Slight gashes are made in the afflicted parts of the patient's body. If it be a case of persistent headache, a cut from a quarter to one inch in length is made in the head. If the pain be in the back, a cut is made there. Other parts of the body receive like treatment if the devil intrudes there. You might think that some of these thrusts would prove fatal to the patient, but through long practice these surgeons probably know were to cut and where not to cut. These doctors charge for their services. Their fees consist of whalebone, walrus tusks, fox and deer skins, food, etc. Eskimo families, like people in civilized lands, are made poor by having much

sickness. The Eskimo word for paper is "muk-pa-rah," and there was a little thin doctor whom we christened Muk-pa-rah. By virtue of his paper thinness he was reckoned a good doctor, for he could get into places where larger men could not go, so that the "evil spirit" had a hard time to conceal himself from this doctor. He was very successful in driving out the devil from the innermost recesses of the Eskimo heart, soul, and body. Whenever our doctor made a professional call in the village, Dr. Mukparah wanted to be consulted, and they used to go together to heal the sick, our doctor administering the medicine, and the other doing the howling and face-making. Of course the latter made the patient well and, being the native doctor, got such fees as he demanded.

These Eskimo doctors are employed at certain seasons of the year to beat the drums and howl upon other occasions than those of sickness. In the spring they ab-ba-bah for a southeast wind to drive off the pack ice and open the water lanes, so that the whales can pass up near the coast. During this ceremony the men sit in a semi-circle facing the ocean, the middle man or magician beating a drum and singing a monotonous chant addressed to a spirit, requesting him to make the desired wind blow. While this incantation is in progress, as well as during the whaling season, no pounding must be done in the village for fear of frightening away the whales. In the fall of the year they howl for the large ice to come from the north and bring with it nan-nuk (bears). If a vessel be nipped in the ice, they howl for her to be crushed so they may enrich themselves with the ship's canvas and cargo. In the summer of 1882, when the steam whaling ship "North Star," Captain L. C. Owen, was nipped abreast of Point Barrow, the Eskimo doctors kept up a continuous howl for her to be crushed. For three weeks they encamped upon the ice near the ship, waiting for the crisis to come. Our signal glasses were constantly pointed at her, and when we saw her flag at half-mast and heard the natives shout we knew the ship was in trouble. The ice pressure was too great for her and, strongly as she was built, she was crushed in and sank within three-quarters of an hour. We saw through our glasses her every movement, the crew lowering

boats and heaving things upon the ice and finally leaping for their lives. When the captain was done with her, he allowed the natives to do as they saw fit with the vessel. They then began operations by climbing aboard, running aloft, cutting sails and ropes and heaving upon the ice every thing that was movable. Canvas, the natives prize very highly; it makes good summer tents for them and they use it also to wrap their dead in. They will endanger life and limb for the sake of getting canvas.

In their trading these natives practice considerable trickery, and when detected they consider it more in the nature of a good joke than a wilful falsehood. We bought from them seal oil to burn in our lanterns. At first they brought it to us in wooden vessels which we immediately emptied and returned to them. One day a native brought oil in discarded fruit cans and, seeing that we did not empty them, they all began at once to bring the oil in these cans. A lively trade sprang up and it was some time before we discovered that we were buying cans only half full of oil, the lower half containing solid ice.

In the fall of 1881 we were very much in need of fresh meat. We made it known to the natives and, as we had, a few weeks earlier, paid them well for a portion of a deer, they at once dressed a large dog (removing his skin, head, feet, and tail) which had either died a natural death or been killed on account of old age, and offered it for trade, assuring us that it was freshly killed deer.

In the spring of 1882, we began to retrench in the use of our coal, and we hired the natives to gather drift wood for us. A brisk wood trade sprang up, but after the wood pile got about six feet high it did not seem to increase, although the same number of sled loads came every day, and the same amount of tobacco and hardbread was paid out. Their system of stealing the wood by night and returning it by day for sale was continued for some time before the discovery was made.

While helping us unload the schooner which brought us additional supplies, a box fell upon the foot of a native and pressed against his leg. He made a great fuss and said "Aṅ-a-naḥ, aṅ-a-niṅ-i" (it hurts, it hurts very much). He limped and we helped him up the beach and paid him

off, giving him an extra amount of hardbread and tobacco. A long time afterward he told us that he was not hurt at all but that he "chuck-a-looed" (lied) to us and said that he thoroughly enjoyed deceiving the white man, or words to that effect. We christened him "Chuck-a-loo."

As a general thing the Eskimo do not lie to one another, or steal from one another. If they be away from home and run short of provisions they will help themselves to any meat cache which they may chance to find, just as the graziers of cattle on the Western plains slay their neighbor's fatted calf, if away from their own and in need of food. During the first fall, when our quartermaster and commissary stores were strewed along the beach, these natives were very honest with us. They had then a fine opportunity to steal, but, strange to say, not one article was stolen. But as soon as our goods were housed and a lock put upon the door it was not safe to leave anything outside. We were annoyed at first by their petty thefts. When we brought them to task and charged some one of their number with stealing, he denied it, but intimated that such and such a one was a bad man and that probably he did the stealing. We found a bright, honest and truthful boy and christened him "Pinkerton." Through him we found out every thief in the village. Ez-e-ki-ah was his name, but if he were called by that name he would not respond, and if asked why he did not answer he would say "Wung-a Ez-e-ki-ah pe-juk, wung-a at-kar Pinkerton" (I am not Ez-e-ki-ah, my name is Pinkerton).

The Eskimo made very little effort to learn our language but seemed anxious that we should learn theirs. They wanted to speak to us and to be spoken to. They were inquisitive, but showed neither surprise nor admiration when we exhibited and explained white men's inventions. They were intensely fond of looking at the illustrated magazines and papers. They have very active minds, learning readily and remembering everything which they have seen or heard. When we asked them about anything of which they had no knowledge, they would say "I tu, wunga la nu gagah" (don't know, I never heard). The Eskimo have great difficulty in pronouncing English words and perhaps this is the reason that they did not take an

interest in learning our language. Of course they wanted to know the names of the men in our party, and they made a desperate effort at pronouncing them. They could not say "Ray," the name of our commanding officer, but by prefixing the syllable ou, they said plainly "Ou-ray." To some words they had to add a syllable, in order to pronounce them. Smith they pronounced "See-miss-ee." Herendeen they called E-tic and some few said Er-e-tic. The name of Mr. Dark, our astronomer, they could not pronounce. Their own word for night or darkness is tah. We told them that dark and tah meant the same thing, and Mr. Dark was afterward known among them as Tah. Dr. Oldmixon's name they could not pronounce. He was known as the "kabloonah doctor," which title they pronounced very well, except that they always represent the sound of d by that of t. They asked us a great many questions about the "kab-lu-nah nu-na" (white man's ground). We explained as well as we were able and showed them a great many pictures of objects for which they had no names. If any four-legged animal of which we showed the picture was as large as a caribou, or even an elephant, they called it "took-tu," their name for caribou. Any kind of a house which we showed they named "ig-lu." Ships sailing through the water they comprehended, having seen them, but the railway steam engine going over the "nu-na" (land) they could not understand. They said they would like very much to see our land, and one of them said if he were to go there he would have so much to "tow-took" (see) that he could "see-nik pee-juk" (sleep not). I asked the "mickanini" whom we had named Pinkerton to leave his cold country and go home with me. He looked up in my eyes and asked in an earnest tone "E-lu-it nu-na kowkow am-a-dri-ni-ok-to?" When I answered in the affirmative and told him that we had "much

food in our land" he said that he would go with me to my home. But when the time of departure came, both he and his comrade—for we had been commissioned by the United States Government to select two natives who were to be brought to the States and educated—drew back and could not be induced to forsake the many charms of their ancestral home under the midnight sun.

THE DAILY WORK OF AN ARCTIC EXPLORER

DR. FREDERICK A. COOK.

Dr. Cook was born in Callicoon Depot, N. Y., June, 1865. Surgeon and Ethnologist to the first Peary Expedition, 1891-92. Commander of Expedition on Yacht "Zeta," 1893. Organizer and Commander of Expedition on S. S. "Miranda," 1894. Surgeon, Anthropologist and Photographer of the Belgian Antarctic Expedition, 1897-99. Surgeon to Peary Auxiliary Expedition, S. S. Erik, 1901. Author of "Through the First Antarctic Night."

DOCTOR FREDERICK A. COOK

THE DAILY WORK OF AN ARCTIC EXPLORER

By DR. FREDERICK A. COOK

EW of us ever have a long run over a hill of happiness without stumbling upon several ups and downs of misfortune, but we soon forget this, and, altogether, life seems easy enough to most of us who live in temperate climes. It is not the same, however, with the men who seek the realms of the great frozen lands in the Arctic and Antarctic. Their path is over a series of ups and downs, but mostly ups. Their comfort, if they have any, is involved in the effort to overcome the ever-present discomfort. The men who aim to reach the pole are kicked about by giant seas, are pounded by heavy storms, are brushed by freezing drifts of snow, and yet they calmly resign themselves to become the footballs of a hard fate because of a few pleasures. An effort only partly crowned with success gives such elation and joy that all the sufferings and discomforts are forgotten.

Herein lies the reason for the unfaltering law that he who has once beheld the other-world conditions, and has felt the charm of the white snowy silence of the frigid zones, will ever long to return. If from any cause a polar explorer cannot return to the dream of his life he either commits suicide, gets married, or dies an unnatural death in some way.

Individuals differ very much in their impressions of the degrees of comfort and discomfort which result from the prosecution of the work of polar exploration. The

pioneers of the old school who worked with inefficient implements and almost perished, tell only tales of woe. Those of the new school, profiting by the experience of the men of old, and utilizing the more perfect modern equipment, are enthusiastic about the pleasures of the work. The fact is, that one can find both comfort and discomfort to his heart's content while wandering over the wild wastes of polar ice, but he seldom thinks of the comfort until he has returned and passed beyond the reach of discomfort.

Soon after the announcement of each projected modern expedition, there have poured in hundreds of applications from young men, and from women not so young, to join in the effort to explore the polar regions. It is curious that so many should volunteer their services for so arduous a task. Why is this pole-seeking so popular? Surely these aspirants are not familiar with the real phases of the life of the explorer. From beginning to end the work of an exploring party is hard; to endure hardships and to suffer are the normal conditions. On such expeditions there are few servants, and few men to do the drudgery of daily work. Officers, as well as sailors, must mend their own hose, wash their garments, cook, and fill the places of carpenters, shoemakers and what not. The work is like woman's work; it is never done. People often ask, "What do you do to pass the time?" One is never more busy, or more thoroughly occupied, than when performing the duties of a well-organized expedition. There are thermometers and barometers to read and record, astronomical and nautical observations to be made, magnetic and auroral phenomena to be noted, and clouds to be studied; then there is the prosecution of the never-ending series of studies bearing upon the fauna and flora of the region. This is the work at headquarters, which must be continued every hour of the night and day, throughout the year. Moreover, there is the field work, the work of surveying and exploring the unknown stretches of land and water which is the real test of endurance.

Let us follow briefly the life of a sledge traveler. He starts out for a determined poleward dash, taking with him no money to buy necessities and comforts en route, no trunk or little luxuries; nothing beside his bed and his tent,

with fuel and provisions for three months or more. All of this is in such shape that at any moment he is prepared to carry his baggage on his back for miles. There are no half-way inns, no houses, no shelter, and no bazaars by the wayside. If he has forgotten or lost anything, it cannot be replaced. He is far away from the familiar world, far from the accustomed comforts of life, and as completely isolated as if he was on the surface of the moon. Day after day he plods along over desolate fields of rough ice, pushing and pulling sledges, urging and whipping the wolf dogs. He is always too tired to talk, frequently too weary to eat, and often also too uncomfortable to sleep. Still, he has resolved to make the effort of his life, and he continues to press onward.

One day he advances five miles, the next twenty miles, and again but a mile; and then a storm comes which causes a halt of five days. As time goes on, the stock of provisions decreases, the load becomes lighter, but he finds the distance covered all too small. Half rations are now served. Heretofore the full ration would seem a starvation diet, but now it is only half, and the character of this is such as to make one's marrow shrink. Here is the day's gastronomic comfort: For breakfast, two cups of tea, a few ship's biscuits, hard and tough, a bit of pemmican, twenty years old, which is made of equal quantities of dried meat and beef tallow. No luncheon, except a soap-like cake of bacon-fat, mixed with pulverized peas. For dinner, the breakfast is repeated with an extra treat in the form of a large drink of water, if the fuel supply will permit such a luxury. Experience has proven that this is the most practicable bill of fare, and it does not permit of much elaboration. Except the tea, everything is taken cold, and to-day, when I think of my chattering teeth and quivering muscles, while trying to devour the straw-like pemmican, I am doubly glad of the comforts of home.

It is really remarkable to see how this scant polar diet keeps up the physical powers, and it is even more remarkable to see how a fat piece of frozen pemmican will change a hungry man's mind. Hunger is as normal to the explorer as the shivers, and both complaints are treated by the same remedy, food—for when the stomach is full the body

is warm. When the day's journey is ended, the tongue burns, the throat is parched, and there is an uncomfortable pinching at the pit of the stomach. One feels like eating a mountain and drinking a river, but the effect of pemmican upon this condition is marvellous. It is too hard to eat rapidly, so one nibbles away, shivers and dreams of better times. The dry, uncooked bits of meat go down with a snatch and some effort, and one is very conscious of its position in the stomach by a heavy, full feeling, which is always a joy to hungry mortals. Long before the half-pound lump, which is the usual allowance, disappears, the pangs of hunger are forgotten, and then a desire for a hot cup of tea, to take away the scratchy feeling, is all that is necessary to make life again worth living. The diet of a sledge traveler is not so bad when you have nothing else within reach, but the gods could not force a man to eat it if he could get something else instead. One takes to it as kindly as a convict does to prison diet.

AN ESKIMO BELLE

It is not so bad with the bed. Among the incidents of bed-going are to be found the happiest moments of an explorer's life. It is a pity that the North Pole cannot be reached in a sleeping-bag, for therein lies the foundation of most of the comforts of polar adventures. This is as it should be, for when a man forces his powers of endurance

to their utmost, he must have proper rest, but this rest is generally of short duration and is always carefully guarded. Much depends upon the mood of the elements, the location of the camp, the cut of your sleeping-bag, and also upon your companions. If the wind blows hard it always carries needle-like crystals of ice, and these drive down your back with an unpleasurable ease. If the camp is pitched in some nook, out of the wind, you are quickly buried under the drift of snow. If the sleeping-bag is too thin or too thick, if it is too long or too short, or if it has any one of a dozen faults, it makes life a torture. Some prefer a "one-man" bag, others a bag for three. Now, I like a "three-man" bag, but I want to choose my bed-fellows carefully, and I also want to select my position in the bag. When three men are slipped into a bag, like fingers into a glove, there is not much room for discussion. Such men must not have bristles which can be rubbed the wrong way, for there is nothing worse than sulphurous language in a sleeping-bag. It doesn't matter how charming a man may ordinarily be, he is another sort of a creature in a bag; and then, too, men have such different ways when asleep.

"The chronicles of three men in a bag" would make an excellent title for a story of exploring life, but I am not going to write this story just now. To illustrate the comforts and discomforts, however, I must recount a part of this experience. In field work one seldom has shelter except a small tent or a snow-house, but usually, when the weather is at all tolerable, the bag is spread out upon the open field of ice. One man attends to the culinary business; his duties are simple. After building a wall of snow as a wind guard for the little blue-flame oil stove, he selects some blocks of snow to be melted for tea. The tea is several hours in preparation, and while this is being done, the other two undress and slip into the bag. It is remarkable how quickly men will jump out of their clothing in a temperature of forty degrees below zero.

As the men quiver and shuffle and grunt in the bags to overcome the chill of their cold air bath, the cook chops off pieces of pemmican with an ax, and, with a package of biscuits, he tosses it to them. For a half hour they punch each other and munch the hard food, and then a reaction

sets in—a sort of warm electric glow which raises the mind to the seventh heaven of happiness. Ah! these are the moments for which polar men will gladly shiver for weeks. Then it is that they lie down and dream of happy homes, sweethearts and friends far away. After a time, the lonely mortal upon whom the lot has fallen to prepare the tea, brings over a condensed-milk can full of steaming stuff. It is feeble, but it is hot, and anything hot is a godsend. Little things, like cups and saucers, knives, spoons and table linen, do not trouble the explorer. Nor does he ever think of washing dishes. The cook then kicks up some bits of ice as a pillow, and stores the clothing under the bag to keep it from being blown away, after which he drops out of his garments, shivers, and pushes into the center like a wedge between the other two. He has a distinct advantage over the two first bag tenants, because he gets the warmth of the others, who are by this time in a fever heat of happiness. In a very short time all are sleeping the sleep of the just in a lonely wilderness of ice. and then what care they for the cruel outside world? There is no noise except the metallic crackling of the snow under the bag, the snore of the companions, and the steady blow of the wind as is brushes the bag.

Their sleep is frequently disturbed by the "turning process." The position of each bag tenant is like that of a sardine in a box. The snow soon closes in around the bag in such a manner that any unusual room is obliterated by the pressure from without. To turn, then, is a task which requires a unison of action. It is curiously easy, however, to bring about simultaneous movement, even among sleeping men. The signal is usually given by one of the side men, who turns, bringing his elbows against the ribs of the middle man. The middle man, in his first experience, wakes up and rams his other companion a double blow. The third man also wakes up, turns, and the process is over until the next turning period. After a few nights, this turning is done simultaneously by all hands without waking up.

It is the universal opinion that polar explorers suffer mostly by reason of the intense cold, and that success or failure is due to the powers of enduring low temperatures,

but this is far from the truth. True, there are snow and ice everywhere in evidence. Snow falls during the summer as well as during the winter. For this, however, we are prepared; suitable garments so fit the body that one does not really suffer much more from the effects of cold than does a New Yorker in winter, and we avoid the life-reducing heat of the home summers.

Still, I do not mean to infer that the cold is ever forgotten. The conditions are such that the absence of heat is constantly brought to mind. When we start out from our comfortable rooms at headquarters, we emerge from an agreeable temperature of seventy degrees into an icy air of minus forty degrees, which makes a difference of one hundred and ten degrees of cold within ten seconds. This causes the breath to come in jets of steam, and soon the whiskers, the eyebrows, and every fragment of hair about the face are covered with icicles and crystals of hoar frost; beautiful little things, but they do not seem pretty at all to the possessor, for he is constantly brushing them off, pulling out bunches of hair and blowing out warm phrases. One never learns the real trouble of the life of the frigid zones until he has his face bejewelled with icicles.

Owing to the natural laws of radiation, the extremities lose their heat first. The careless traveler, constantly suffers from cold hands and feet, and even a careful adept loses his fingers or toes with remarkable ease. We start out on a mission, traveling over the icy waste of white wilderness, and, for a time, all are happy, comfortable and contented. After a few hours we become thirsty, but we well know that there is nothing to quench our thirst, for, though there is water everywhere, it is frozen. Later, we become hungry, but we must delay satisfying the pangs until our destination is reached.

We plod on and on, over the weary snows, until we find a camping place. Then we pitch camp, but now one has a stinging pain in his toes; after a while this vanishes and is replaced by loss of sensation in a large part of the foot.

The boot is removed, and through the many thicknesses of hose the foot feels like something foreign. One stocking after another is cautiously taken off, but still there is a woody touch to the foot. When the last stocking is stripped

down, the foot is found white and glossy, like porcelain. A more careful examination reveals the fact that one or two toes are missing, and then the sock is shaken for the missing bits before an effort is made to restore the circulation of the icy tissues. But an explorer must learn to rise above such little discomforts. He who cannot afford to lose strips of his skin, or parts of his hands and feet, is not worthy to be counted among the braves who seek the pole.

No! it is not the cold which makes the life of frigid explorers hard; it is the hopelessness of the unimaginable isolation from the accustomed walks of life. Perhaps it is unbecoming to the supposed austerity of explorers to admit that the withdrawal of the little home and social incidents of life are the causes of the greatest discomforts, but this is nevertheless the fact. One misses most the little touches of romance which are unconsciously a part of our daily entertainment. After being locked in the ice and forced to endure its awful monotony for a few months, what would one not give for a letter, or a word from home, from mother or sisters, or other men's sisters? Ordinarily, men do not know what it is that makes life enjoyable, but he who aims to reach the North Pole will quickly learn that he suffers not from the cold or hunger, but from the little nothings of home and social life which are there far out of reach.

I might go on and recite a hundred other lessons which go to make up the schooling and deprivation of the Pole seekers, but I hasten to record the comforts. There are few, but they exist to him who seeks them. For here is the world nearest to its youthful character. The moving crust of the earth with which we drift, the hardy, simple life, and even the sky, all suggest a period of the earth in its infancy long before the advent of man. It is this strange simplicity, this other-world air of terrestrial youth, which makes the polar regions so fascinating to nature-loving man. Everything about us is new, yet old; every sight is simple, yet clothed in mystery; every phenomenon like a shy maiden, is attractive, but difficult of access. The haste and hustle of the living world are far from the mental horizon, and the mind is ready to examine new problems. It is fortunate that one can, after a little experience, here open

ESKIMO POSING BEFORE THE CAMERA

the book of Nature and record the causes and effects of nearly all phenomena, for then the mysterious halo which surrounds everything polar disappears.

Each point of attraction which at first bewilders us by its strangeness becomes a written page to be added to the future annals of science. There are a hundred things which, in this way, daily present new aspects and urge the mind out of its lethargy of monotony into a state of fascination. Now we can see some peculiar strip on the sky, a striking series of clouds, a rare fog effect, an unusual sunburst or an aurora; now it is something connected with the sea, or with its burden, the ice. Perhaps the surface will seem motionless, while at a little distance a small, blue-ridged berg will bound and dance as if animated by some strange submarine spirit; or perhaps one of the bergs, with whose face we are familiar, will suddenly turn, offering a new face and a curious color. Again a berg is seen with black spots and discolored stratifications. What is the origin of this? Is it the output of a volcano, or is it natural glacial debris? We see the effects, but what are the causes?

And so the questions run. Hardly have we learned one lesson when another is brought to our notice. This time, perhaps, it is some speck of life, curiously embedded in a

wilderness of ice. What story has it to give? To what family does it belong? We want to know its manner of life, its food, something of its migration, and so on. There is always a stimulus for an endless series of interesting observations. These tempting studies are what lift the spirits above the even plane of white monotony. It is this fresh interest in the unknown which makes life tolerable. We all like to ponder over the days of our youth; those of an inquiring turn of mind love to reflect upon the youthful days of the earth; and looking at the polar world, as a whole, it bears a close relation to what the earth must have been when man first came to it. Life under such conditions brings new joys in spite of the soul-despairing discomforts.

LOST ON THE ICE-CAP

HUGH JOHNSON LEE.

Hugh Johnson Lee was born in Malden, Mass., Dec., 1871. In 1892-'93-'94-'95 accompanied Lieutenant R. E. Peary on his north Greenland expedition and crossed the inland ice to Independence Bay with him. In 1897 Mr. Lee made his third Arctic Expedition, acting as Lieutenant Peary's private secretary. Shortly before sailing, Mr. Lee was married to Florence A. Leonard, who accompanied him; their honeymoon being spent within the Arctic Circle.

HUGH J. LEE

LOST ON THE ICE-CAP

By HUGH J. LEE

IT WAS about February 20, 1894, just a few days after the sun had come back to us, and every one about the lodge was delighted to think that all had survived the terrible Arctic night. A short time before, we had climbed to the highest point of familiar Mount Bartlett, the dark and towering cliff which had stood, sentinel-like, above our lodge all through the four months of darkness, and from its topmost point we had looked off to the south, where just above the cliffs of Tig-er-hom-iny on the south side of the gulf, we had seen the upper rim of old Sol as he peeped up to take the first glance into our little world. We had looked with joy into each other's faces and had once again seen the sun shining on them. To be sure it gave them a greenish tinge

after the long period of darkness, but the mental strain had passed, and we were content. The days were short, but they were rapidly lengthening, and we knew that before long we would have continuous daylight for an equal length of time.

Plans for our proposed trip across the ice-cap were well-nigh finished, and the only thing that remained to be done before making our dash for the Pole was to lay in a supply of food for our dogs. The energies of almost every member of the party were required to provide sufficient meat for that purpose, so that no one could be spared by Lieutenant Peary to assist me in the work of going into the interior to dig from the snow the provisions which had been cached at a point about thirty-five miles from the house, and at the top of the steepest slopes of the ice-cap.

Besides Lieutenant Peary, I was the only man of our party who had visited the cache, and so was selected to make the trip. The cache had not been visited for four months, and we expected that the provisions left there would be pretty well covered with snow, the accumulation of the entire winter. My orders were to start from the lodge Sunday afternoon for the moraine, where I was to camp that night, and the next morning make my way to the cache. On reaching it, my duty would be to dig the provisions out of the snow and put up the two tons of pemmican in one hundred bags, so that they could be handled easily on the journey across Greenland. When I had finished that work, I was to build several large snow-houses which would form a shelter for the entire party while at work loading sledges, etc., preparatory to making the start.

As I left the house Sunday afternoon, I had a first-class dog team and was accompanied by two natives. We took no oil stove with us, and very few provisions, as we had left an oil stove and plenty of food in a snow-house at the moraine, where we had camped frequently during the fall campaign. The distance to the moraine was five miles, and the path or trail of the autumn before was entirely obliterated by the snow which had fallen during the winter. The traveling, which was over steep rocks, covered in many places with ice, was the roughest imaginable, and before we reached our camping place we were more than three

thousand feet above the level of the sea. That moraine was a barren spot, wind-swept and bleak in the extreme. One of the peculiarities of the interior of Greenland is the constantly blowing wind in the direction of the slope of the land, save, of course, in the case of general storms. It was this constant wind, which in the preceding October had sent the snow from the interior sweeping across the moraine like an avalanche, and had held our entire party at bay in the snow-house for more than two weeks waiting for a chance to get across and into the interior.

When I reached the former camping place on that Sunday afternoon, about 4 o'clock, it was already growing dark, as the sun was not yet high enough to make the days very long, and I could see no sign of the snow-house where we had slept so often during the fall.

In its place was a smooth white mound of snow. The summit of the moraine was bare, as no snow could remain on its wind-swept crest, and the rocks and gravel of which it was composed were heaped in little conical-shaped masses, making it an easy matter for me to pick out the exact location of the dug-out which had been covered by the big snowdrift. Assisted by the two natives, I began digging with my hunting knife, and soon reached the roof of the house which was to provide our night's lodging.

During the winter the constantly blowing wind had sifted snow through the cracks in the walls of the house until the interior was a solid mass of hard snow. It was 8 o'clock when at last we reached the canvas which covered the floor of the snow domicile, and using this to patch up the big hole in the top of the house, we made ourselves comfortable, and after a hearty meal all three went to sleep wrapped up warmly in reindeer skins.

In the morning I found that during the night I had, in my sleep, broken my pocket compass, and the thought of going into the interior without a compass being preposterous, I started back to the lodge to replace my loss, leaving the two natives with instructions to put the snow-house in good condition for a future camping place. Had I returned to the moraine at once after getting the instrument, much trouble might have been avoided, but Lieutenant Peary invited me to remain to dinner at the house, as

he said I would not be able to start from the moraine into the interior before the next morning.

After dinner I left for the snow-house again, and when I had almost reached it I met the two natives, who said that after having repaired the house they had become frightened at the continuous wind and the loneliness of the ice-cap which was the abode of the "Kah-koy-ah," or devil, and had wanted to get away from his influence by returning to the coast. The natives are very superstitious about the ice-cap, and never go into the interior unless led there by some white man.

ESKIMO ATTENDANTS

I laughed at them and told them to come back with me, as I was not afraid of the devil, and I would protect them from him. They replied that before they had left the moraine they had untied the dogs, so that the devil could not get them, and they were scattered all over the side of the mountain. It would be useless to go back as there were no dogs with which to make the trip into the interior.

I never have been able to determine whether this action was taken to free the dogs from the influence of the devil, or in order that the Eskimo might have a good excuse for not returning to the moraine with me, knowing full well that they must meet me on their way home.

A sight of one of the dogs up on the mountain side showed me their story was true. I knew that they would find their way back to the lodge, but it was impossible to catch them at this time, so I went back and reported to Lieutenant Peary. The suggestion was made that I take two other natives and a new team of dogs, and go back to the moraine later in the evening, after the moon had risen,

so that I could be ready to start on to the ice-cap early Tuesday morning. This plan was carried out, and as I left the lodge that night the lieutenant handed me a knapsack, saying:

"Here is a present from Mrs. Peary. You can leave the knapsack at the moraine."

Reaching the remodeled snow-house without incident, I opened the knapsack and found that it contained a cherry pie. This pie formed my lunch on the following day, when it was frozen so hard that in order to eat it I had to chop it into small mouthfuls with a hachet. Tuesday was a fine cold day, the temperature being about forty-five degrees below zero. During the short day I covered about twenty miles, taking a northeast course from the moraine. The variation of the compass at that point was ninety-six degrees west, so that in order to travel northeast, the course was southeast half south.

All day we journeyed without seeing any of the frequent guide-posts which had marked the course during the fall campaign, and the natives seemed to doubt that the compass would guide us to our destination. During the afternoon there were frequent appearances of the peculiar mirage effect so often noticed on the ice-cap, and this had given the Eskimo the idea that the devil was following us. As night came on, and there was nothing except the compass to show that we were on the right track, the natives began to grumble and wanted to turn back. I knew that we had come at least twenty miles, and we ought to be pretty close to the tent which we had left standing nearly ten miles this side of the cache. Chilled through with the biting wind, having traveled but slowly, as the dogs were unable to go fast with the heavy sledge, and threatened with a strike, as my Eskimo were liable to leave me at any moment, I decided to camp for the night.

I told the natives that if it were only light enough, we could see the tent from our present position. They did not believe me, but by promising them I would let them go home in the morning, should my statement prove untrue, I persuaded them to stay with me over night. We made a snow house in which we slept comfortably. My calculations proved correct, and in the morning we saw the top

of the tent not more than half a mile away, and a little to the left of our course. Breaking camp we started for the tent, and in a short time had it folded up in our sled and were marching on again. The natives were awe-stricken when they saw how that tiny compass had guided us over all those miles of trackless snow; they assured me that they would remain with me as long as I might wish, providing always there was plenty of food in the outfit.

I had no more trouble with them, but the elements were against the successful completion of my task. Soon after the tent had been struck, and we had started for the cache again, a great white cloud enveloped us. This prevented all progress, as any one who has been in a similar position well knows. One cannot take half a dozen steps in a straight line, and, as it is impossible to carry a compass steady enough to keep one direction by depending on it alone, one might just as well be without that instrument.

I cannot describe, in any adequate manner, the sensation of being on the ice-cap and enveloped in one of those clouds. One can feel the surface beneath his feet, but he cannot see it. He can perceive no horizon, as the earth and sky are both of one color. The foot tracks in the snow, even, are invisible, and one feels as if he were suspended in gray space. The only thing to do was to camp and wait for clear weather.

The next morning was Thursday, and, as I knew that I was within two or three miles of the cache, I thought that it would be a good plan to locate the store of provisions exactly, before moving camp, especially as the last mile or so of my journey the day before had been made while in the cloud, and I knew that I was a little off my course. The two natives and I started to find the cache.

It was not so easy a task as I had expected, however, and I found that it was noon before I had located it. Thinking that either one or more of my assistants might have been more fortunate, I retraced my steps to the tent only to be disappointed. Exasperated at finding the entire forenoon wasted in fruitless search, I started out to look for the cache again, not even going into the tent to get a lunch. An hour or so later, the cloud once more enveloped me, and I tried to retrace my steps to the tent. It soon began

to snow hard, and as it was impossible for me to see my tracks, I feared that I might be lost. Night came on rapidly, and I walked for a long time in the direction in which I thought the tent to be, at last realizing that I was really lost, and the more I wandered about in search of the tent, the farther away from it I might be going.

I saw that it would be impossible for me to reach the tent that night. I made up my mind that the best thing for me to do was to remain where I was until morning, and I began to experiment on what I could do to keep my feet from freezing, for I knew that even though the temperature was between forty and fifty degrees below zero, my clothing was warm enough with the exception of my moccasins, which were moist with the perspiration of the long day's tramp. I took my big fur mittens and tucked them on my toes, and pulling my hands through the sleeves of my fur coat, Eskimo fashion, folded my arms across my breast, and with the empty sleeve across my face to protect it from the driving storm, lay down in the snow, but not to sleep. It took me but a short time to realize that sleeping meant freezing, and soon I arose, having decided that the only way to pass the night alive was by keeping in motion.

I had often read of the experiences of travelers lost in snow storms, and supposed that, like them, if I kept in motion I would travel in a circle, finding myself in the same vicinity in the morning. I acted in accordance with this plan, and all through the long dark night plodded on, not daring to stop to rest for fear of freezing, for I was chilled through with the biting wind and exhausted by the ever-drifting snow blown in my face, no matter in which direction I turned.

After a most tedious night, and just as the morning gray began to show in the south, suddenly and without warning the surface gave way beneath my feet, and I felt myself falling. Involuntarily I threw myself backward, and found myself hanging by the middle of my back with my feet dangling in space. The ominous sound of frozen pieces of snow and ice, rattling down into the depths below, warned me that I was hanging on the edge of one of those dangerous crevasses. Making a supreme effort, I

pulled myself back onto the solid ice, where for a time I was afraid to move, for fear of falling into the big ice cavern, which was covered with snow, and which I could not see, except in the one spot where I had broken through the crust which concealed it.

The snow had stopped falling and it was rapidly growing lighter, making it possible for me to see the outline of the edge of the crevasse, which was about an inch lower than the surface of the ice-cap. I started to follow it, still trembling from my fright, but at last gained confidence as the day advanced, and I continued along the edge for perhaps two miles, when I found a place where it was narrow enough to jump.

I could see the whole of Inglefield Gulf spread out before me with all its indentations, including Bowdoin Bay, where the lodge was located. I knew that I was a good many miles from my camp of the day before, and after my wanderings of the night in the snow storm, it was useless for me to attempt to find the tent. Although I had my compass with me, I did not know the course to follow, for I had paid no attention to the way I had come. From where I stood making these observations, there was a glacier that appeared from my position to be what we called the East glacier, which comes down into the bay on the eastern shore, four or five miles from the house. The distance did not appear great, and thinking that by following its course down to the bay, I could reach home in about two hours, I started with a vigor which I had not supposed possible after the twenty-four hours of continual tramping, fasting and battling against the storm.

The journey down the surface of that glacier was about the roughest tramp of all my five years' experience in Greenland, and I had not traveled very far from its source before I discovered that it was not the East glacier, but instead the Hubbard glacier, which reaches the shore of the gulf at Koin-a-soon-ny, about twenty-two miles from the house. Still, I knew that the best way to avoid getting lost again was to follow it to the sea, for I was familiar with the entire coast, and knew that as soon as I could reach the gulf, I would have smooth traveling and the chance of falling in with some natives from whom I could

get food and secure a sled and dog team for the homeward journey. It appeared to me that I would be able to reach the shore in a short time, but the rough traveling made the journey a very tedious one. The surface of the glacier was covered with well-nigh impassable crevasses, and I had become so tired that it mattered little if I fell into one of them, so pushed along recklessly. Several times I stepped into the crust of snow which concealed the

AN ICE ARCH

crevasses, repeating my experience of the early morning, but I was no longer frightened, for I had reached such a state that I did not care what happened.

It was long after noon before I reached a place where it was possible for me to leave the glacier. I had thought that by traveling on the land instead of the ice, I might find an easier road. I followed the bed of the stream which flows beside the glacier in the summer time and found but little improvement in the walking, the course of the stream being strewn with huge boulders, which were almost as difficult to travel over as the rough, hummocky ice on the glacier. There was no danger of falling into crevasses, however, and I knew that if I followed the glacier to its end without leaving its surface, it would be impossible for me to get off from it, as its face is perpendicular and about eighty feet high.

The bed of the stream was in one place blocked by a large mass of ice which had fallen away from the side of the glacier, and was banked up against the steep mountain

side. I tried to get around the obstruction by climbing up the mountain, but this was impossible on account of its steepness. As the glacier was broken at that point, I found that I could climb back upon it, and I did so, trusting to good fortune to find a place on the other side of the broken mass of ice, where I could get down into the valley again. I traveled some little distance on the top of the glacier and was rapidly approaching its terminus without finding such a place.

At last I decided that the only thing for me to do was to make an attempt to climb down, and, as the night was coming on fast, and it would mean sure death for me to remain there after dark, I started to follow the course of a small crevasse, which ran crosswise of the glacier. The crevasse was only three or four inches wide and by getting hold of its icy edge with my hands, I began my descent. On account of the shape of the glacier's side, I could not see what my landing place was to be. The crevasse gradually narrowed until it was not large enough for me to get my fingers into, but I had descended so far, and down such a steep grade, that, even if I had not been exhausted, I could not climb back again.

I could not see how far I was from the bottom, but gave up all hope, and after hanging in my perilous position for a time, decided that I might as well end the agony, and so released my hold and went flying down the side of the glacier. Luckily I landed in the deep snow which had drifted into the ravine at the foot of the glacier, and in a few moments I was on my feet again and covering the short space which remained between me and the shore.

It was quite dark as I walked out upon the sea ice, though not too dark for me to see that I would have to make a wide detour around the face of the glacier, as the icebergs pushed out from its face had broken up the ice for several miles. I was over twenty miles from home, with the prospect of walking all night before I could get anything to eat, unless I could fall in with some wandering Eskimo, and the chance of doing so was small, as the lodge was nearer than the nearest native village. My pathway over the surface of the gulf was smooth and it was easy for me to find my way, as all I had to do was to follow

the shore right up to the house. Such a walk in the dark would have been but a small thing had it not been for my thirty-six hours of continual tramping and my long fast. I found it necessary to stop frequently to rest, though every time I sat down I could hardly rise again, for I was very sore and lame.

How I ever covered those twenty miles, I have never been able to explain. I was familiar with all the landmarks along the shore, but I did not remember passing any of them except Cape Milne, where I stopped to rest and to congratulate myself on having finished half the journey.

At last I reached the ice foot in front of the lodge, and while I was climbing over the rough ice to the land, one of the ever-wakeful natives spied me, and in a glad voice, cried out "Lee tig-er-ka-shu! Lee tig-er-ka-shu!" (Lee has returned). He rushed into the house ahead of me to acquaint the members of the party with the news, and I followed him. I well remember the sound made by the frozen snow on my fur coat as it grazed on the sides of the passageway leading to the dining-room in our comfortable little house.

In the doorway I met old Dr. Vincent, who had been my companion on the night watch all through the long winter, and who was that night standing watch alone in my absence. He put his arms around me and kissed me while the tears ran down his cheeks.

To return to the two Eskimo who were with me on the ice-cap; they became alarmed when I did not get back to the tent, and when the snow storm came on they began to cry out in order to guide me to the tent, for they knew that I could not find it in any other way. The roaring of the storm or my distance from the camp prevented me from hearing them, or my suffering would have been avoided. I had in the tent a box of Roman candles to be used as signals later, when the main party was to join me at the big supply station for which I had started. The two natives had seen the queer looking sticks and had asked me what they were. I had explained to them that they were to be used as signals and had even taken one of them in my hand and shown them where to light it.

Poad-loo-nah, one of the two, told me afterward that

when it became dark Thursday night, he thought of the Roman candles and, getting out one of them, lighted it. He said he was frightened when it began to hiss, and the sparks to fly, but at the same time he was afraid to let go for fear of getting shot with it, and so held it until all the balls were discharged. After the first one, he ceased to be alarmed, for he saw that there was no danger and he shot off the whole box full of them during the evening.

Friday morning, alarmed at my prolonged absence, and fearing that harm had come to me, they started back to the house, which they reached late that night. They gave the alarm, telling of my long absence from the tent, and the boys were afraid that, alone in a storm on the ice-cap without shelter of any kind, I had perished. Lieutenant Peary, ever thoughtful for his men, had ordered breakfast served at four o'clock in the morning for a party that was to start out in search of me. It was just four o'clock when I reached the house, and the doctor was about to call the men for breakfast, when my return made it unnecessary.

After a day in bed, I was as good as new again, and four or five days later I went with the entire party into the interior.

AN ARCTIC HONEYMOON

FLORENCE LEONARD LEE

AN ARCTIC HONEYMOON

By FLORENCE LEONARD LEE

TO one who has never penetrated that mysterious realm of ice and snow, a bridal trip to Greenland does not sound alluring. Indeed some of the remarks we heard from our home friends led us to think there were those who did not envy us, who, in fact, even doubted our possession of well-balanced minds. Many times I heard repeated the old adage, "They who know nothing, fear nothing." This may have applied to me, but not to my fiancé, and when through the kindness of that "Hero of the North," Lieutenant Peary, the chance to go to the Arctic Regions was offered, we quickly made our preparations, and were married July 6, 1897. Before that day was ended, those who had cavilled joined with us in great longing for a breath of the frigid zone. The heat was so intense that we momentarily expected to see the organist topple over, wilted like a tallow dip. Even the rice thrown at us on our departure appeared to me to be partially cooked.

After spending the intervening time in Boston with relatives, we sailed from that harbor, July 19, on the unpretentious whaling ship, "Hope." On board were Lieutenant Peary's party, a number of scientists, students and professors, Albert Operti, the artist, a most delightful traveling companion, who could joke even when seasickness had him in its clutches, and who rose superior to every inconvenience or disturbing element on shipboard; Arthur Moore, whose handsome face and youthful ardor for adventure won him a place in our favor; his friend, Lansing Baldwin, whose violin woke strange sweet echoes on that Arctic Sea; J. D. Figgins, taxidermist, and Dr.

Sohon, champion cribbage player. It was never dull with such a party on board, even though we were enveloped in fog half the time. Here I witnessed my first game of cricket. Cricket, with the ball tied to the mast, has its charms of novelty, but also its drawbacks. A run started on a deck constantly changing from horizontal to nearly vertical does not always end as the runner would have it; neither is cricket interesting when the ball is slipped from its moorings and is dancing on the waves. We found auctions entertaining, with the auctioneer, a college man of wide experience, who sold articles stealthily taken from his room back to their owner—usually Professor Stein.

The voyage up to a certain time was probably identical with others. But we soon left civilization behind. One morning, hearing a commotion on deck, I hurried up the companionway and found all gazing at a large iceberg. From that time familiar sights passed from me and I looked "upon a world unknown." We were heading for Baffin's Land to leave Jensen who had a whaling station there, and a party of students who intended to remain for hunting and fishing. Baffin's Land! Nightmare of Loneliness! Acme of Desolation! Barrenness! Dreariness! Rockiness!

When the ship anchored, Mr. Jensen was disappointed to find none of the natives on shore to welcome him. Soon, however, after firing several bomb guns to call them if near, he was rejoiced to see a sail appear upon the horizon. It proved to belong to a boat containing one man, three women, five children, several dogs and puppies, and a number of highly perfumed skins. These were the first Eskimo I had ever seen, and they were certainly a strange looking people.

We remained on shore most of that day and part of the next, while the supplies for Jensen's five years' stay were unloaded, together with those of the sportsmen, and here I had the novel experience of coasting down hill in August. It was a fine long slope covered with hard snow, and after watching Mr. Lee slide a few times, I looked around to see that no one was in sight, gathered my skirts around me, sat down and slid, sans sled. I enjoyed it so much that I repeated it several times. When we returned to the station, some of the gentlemen asked me if I enjoyed my

coasting. I was embarrassed to think that I had been caught in the act, but was solaced when I recalled the fact that two of our dignified professors had been sliding the same way.

These Eskimo were queer looking figures with their combination of English and Eskimo dress. The women had upper garments of fur, one wearing a red skirt, the other a light blue. One was the proud mother of a cunning little baby, apparently about two months old. This little thing, when taken out of the hood on the mother's back, in which it was carried, was seen to be clad only in a hood and short coat of fur, leaving the lower limbs absolutely bare. This was all right as long as it was in the hood nestling against the mother's warm body, but when taken out to be fed, it had rather cold comfort. The mother was as delighted with the notice taken of her little one as any English mother would be.

WHERE THE HONEYMOON WAS SPENT

Finally we left the shore and proceeded on our way. Our next stop was to be Godhaven, where my husband and I were to remain, while the ship went farther north for the great meteorite. I was disappointed because we had to punch through no ice pack such as Mr. Lee had described to me, the water being singularly open this year. We steamed into the picturesque harbor of Godhaven on the morning of August 7. Already our ship had been boarded by a swarm of natives with a miscellaneous assortment of articles to "trucky." Through intermarriage with the Danes, these Eskimo have lost many of the characteristics of their race, such as the broad, flat noses, swarthy skins, black hair, and stunted forms. Many are fair, and some of the women are even comely.

Mr. Peary and my husband went ashore to make arrange-

ments for our accommodation, which proved to be very agreeable to me. We had expected to have rooms at the home of the Inspector, Herr Anderson, but his family were in Denmark, so that he could not receive us, but he placed a small hut, more pretentious than the others, at our disposal. It had formerly belonged to the wife of a Danish governor and was perfectly neat. I waited with impatience while our provisions were placed in the boat that was to carry us ashore, and at last all was ready, and we rapidly approached the landing.

After a sight of Baffin's Land, Godhaven seemed a paradise with its fifteen or sixteen comfortable frame huts, covered with turf, which was sprinkled with tiny white flowers. At the water's edge, a group of women, making a brilliant and strange picture with their red, blue or yellow boots, ornamented fur trousers, calico jackets of brightest hues, and many-colored bead collars, awaited us.

It was not long before our goods were housed, as the natives lent willing though curious hands. My hat, a modest affair, suitable to my needs, I laid aside on entering the house, and it was soon surrounded by an admiring group of women, who exclaimed "bene-suse" (fine) many times, over the pink roses. I imagine they thought them growing there, unwatered.

In a short time we said farewell to our shipmates who had proved such pleasant company, and saw the "Hope" pass from our sight around the distant cape. We then turned our minds to the task of house-settling in the little cottage that was to be our home for a month. This cottage was more commodious than those of the natives, boasting three rooms instead of one, though the exterior was covered with turf like all the others. The large front room had two good-sized windows, facing south and west. The walls were painted light blue, the ceiling pale yellow, and it was altogether a very pleasant living room. The other rooms were smaller, but comfortable; one we used as a kitchen, the other as a store-room for our provisions. The little furniture we had was lent us by the Governor, Carl Harries, a young Dane who, with Inspector Anderson, Assistant Governor Fleisher and his wife, all did their best to make our stay pleasant. They were Danes, but could speak

English to some extent. I had been in my new home but a short time, when I was unceremoniously driven out, for the vast clouds of smoke that came from our kitchen stove when Mr. Lee started the fire rivaled that of the smokestack of the "Hope." Two of the natives were soon at work cleaning out the chimney and I reëntered and prepared our first meal, the principal item of which was some fine fish, just out of water. These were obtained from the natives, as were all our fish and birds while there, in exchange for a few ship's biscuits brought with us for trading.

We never had to go to market; the market came to us, in the shape of a string of natives bearing things to "trucky"—ivory paper-knives, bracelets, crochet hooks, knitting needles, brooches, sealskin bags, kamiks, fish, birds, miniature kayaks, and everything else they could think of. They always opened the outer door and stood shuffling and sniffing until I called them in. One day I heard the door open softly, and although I called "mane" many times, no one came, so I went out to see who had entered. I found a tiny boy holding a big fish in either hand. He did not make a motion or utter a word, but simply looked up with a sidelong inquiring glance at me. I called Mr. Lee, who immediately took the queer little fellow outside to take his photograph, and then gave him several biscuits for his fish. One fellow, more like the northern Eskimo, with a shock of black hair standing out all over his head, whom we called the foot-ball player, was always bringing us some worthless thing, and trying to make a deal. One day he brought a red sealskin bag, which had spots of mould on it. My husband said to him: "What's that for?" "Truckey," he answered. "Trucky, decidedly trucky; a fossil, isn't it? You save fossil?" "Eh eh" said the Eskimo, "me save fossil."

They are unwilling to own that they don't understand. He evidently liked the word. "No," said Mr. Lee, "we don't want it, it's no good." No good meant nothing to him, so Mr. Lee said "ajungningilak." The native looked hurt, but finally took his leave.

When we went for a walk, everything that met my eye was new and unfamiliar. The ground, a mass of rocks,

with here and there little patches of turf, sometimes scattered with flowers, the strangely clad people who all greeted us with a smile, the small grass-grown huts, the wide sweep of landscape without a single tree, the numberless icebergs dotting the water everywhere; all were sources of wonder to me. Here I lived for a month and grew to love the land and the kindly people.

Prominent among the recollections of this life, the form of Nicholas stands out. Nicholas was our man-of-all-work. When I found he was to be our servant, I told Mr. Lee that I couldn't endure his presence. Tall, awkward, flat-faced, snub-nosed, and asthmatic, he was not attractive. One could hear him coming some way off, for he breathed like a porpoise. Soon, however, he proved himself so valuable to us that my dislike for him wore off. He understood a few English words, and used them on every occasion. If he wished to get us fresh water he would ask "me ketch um pail?" to chop kindling, "me ketch um wood?" or to build the fire, "me ketch um stove?"

COMFORTS IN THE ARCTIC

Everything was "ketch um" until I lay down at night to dream of Nicholas chasing vainly the things he wanted to

catch. My little maid was a pretty, neat, little girl of about ten years of age, with fair hair and skin, and one eye cast heavenwards. She did exactly as she was told, and though many chances were offered, never took a thing which was not given her. She was called Elizabeth, as all the Eskimo here have assumed English names. We grew to be very fond of her.

We often had invitations to "afternoon coffee" from the natives, and although our first acceptance was given rather doubtfully, I soon learned to like their black coffee from Denmark; but as to their manner of preparing it or the cleanliness of their dishes, I just schooled myself to think of something else. In the evenings there were dances, and these were enjoyed very much. Every one of the people could dance, and Daniel and some others did very well in a dance much like the so-called "Buck and Wing." The children from three years up participated in this, and were all more or less proficient in it. Even our little friend of the fish, whose length and breadth were almost equal, strove fiercely to keep up with the others.

The house to which we went oftenest was Daniel's. He was a jolly, short, dark man, who had been so much on whaling ships that he could speak better English than any of the others. His wife was the best looking woman on the island. Their house, a fair sample of all, was divided into two parts, with separate entrances, which were so low that I never failed to bump my head on entering. Each part consisted of one large or fair-sized room, across one end of which was a platform about two feet from the floor and five feet broad. On this platform were several big bags of feathers used for beds. During the day, these beds were placed flat against the walls, looking like enormous sofa pillows, and the platform served for seats. Around the other sides at intervals were benches, under one of which always stood a keg of ice water. The walls were often ornamented with colored pictures or prints, and in nearly every house hung a small three-shelved rack, on which was displayed the entire stock of dishes, consisting of a few cups and saucers. In the middle of the room stood a stove, a plain round-bodied affair, with one cover at the top. Their fuel was some dried mossy stuff. The floor

was clean, being kept so with sand. In this one room lived, perhaps, three families, men, women, and children, eight or nine in all.

One of our pleasantest recollections is of our trip to Bluefields to obtain speciments of the Nordenskjold iron. We went in a whaleboat with a crew of six Eskimo, and camped out at night in our tent to wait for the tide to be favorable. On the way the crew shot a good many birds, which we cooked for supper. The Eskimo felt the cold that night, their old skin tupic was so thin, but we were in a new canvas tent with an oil stove burning. How those people did admire that oil stove, it was so " assuit " (quick) —almost as much as the women admired a large pink satin muffler that I wore. I imagine I could have bought the island with it had I consented to trade. After obtaining several good speciments, we were returning home, when I felt cold for the first time since leaving the ship, and Mr. Lee made me put on his fur coat. When we got near enough to be seen, the natives all began shouting to the crew. It seems, they thought from the hood and coat I wore, that I must be a Cape York Eskimo, and the crew kept up the joke. The natives are always ready to laugh, and have a great deal of humor. As we drew nearer, I stood up and waved my hand. Upon recognizing me, they laughed with glee over their mistake.

Another pleasant trip was a climb up the mountain to the ice-cap. We started early one morning, carrying just as little provision as possible, and wearing our kamiks; while I wore for the first and only time a bloomer costume, the only comfortable dress for such climbing. The mountain was 2600 feet high, and the ascent most difficult on account of the soft moss on its slope that gives no foothold. At noon we were half-way up, so we rested and lunched in a little rocky glen by a waterfall. I was pretty nearly exhausted then, and, when about three-quarters of the way up, declared I could not go another step either up or down. After resting for a while, though Mr. Lee urged me to return, I was bound to reach the top, as Mrs. Peary had done several years before, and started on again slowly, Mr. Lee carefully picking the way. Soon I got my second wind, and easily gained the top, and stood on the ice-cap. Sud-

denly, a report like that of a cannon startled us, and we looked just in time to see a massive berg, out at sea break apart in the middle, tremble and topple over, a large platform of ice rising from under the water, while the mighty mass above, with a noise like that of a giant groaning, slowly sank upon its side.

After visiting the cairn built by Lieutenant Peary on his first trip north, we started down. The descent was much easier, of course, but some of the places were so steep that the only thing to do was to simply sit down and slide. Mr. Lee would go first, and, landing safely at the bottom of the grade, would stand ready to catch me, should I be unable to stop. There were patches of vegetation on which we found many berries growing similar to our huckleberries, of which I paused to eat so often that Mr. Lee felt doubtful about our reaching home that night; so he set his course with a view to keeping away from them. He had carried his rifle part way up the mountain, and arranged with Nicholas to bring the boat across the harbor when he heard three rifle shots. This would save us going overland about a mile. But before we reached the place where the rifle had been left, we saw the boat coming; the whole tribe, it seems, had been watching for us.

Hardly a day went by that we did not row on the harbor in Herr Anderson's small boat. One day we were just outside the harbor, taking photos of icebergs, when a whale came so near our boat, one could almost have hit it with a stone. I proposed getting out of the way, but my husband and Nicholas assured me that there was no danger and that it was but a little whale, though an animal the length of a small house didn't look so very tiny to me, nor so harmless either. It interested me to watch it spout, and observe how great a distance it could go with one stroke of its tail. In this case distance certainly lent enchantment to the view.

One day, just as we had finished our lunch, a short, dark little Eskimo woman appeared at our door and told us she was very tired, having come overland from Disco fiord, a place about forty miles away. We invited her in, and gave her some hot coffee, cold tongue, cheese and biscuit, which she ate with relish. She spoke English very well, and in

the course of conversation, we discovered that she was the famous Augustina, who, twenty-five years before, with the unfortunate party from the wrecked Polaris of Hall's expedition, had drifted on the floe ice for a whole winter. She was the mother of the child born on that drifting ice, who is now living on Disco Island, under the name of Charlie Polaris. We were much interested in Augustina, and in her account of her trip to the United States, where she had been taken when rescued from the ice floe by Captain Bartlett, an uncle of our own captain.

Before we came away, we had two snow storms, but the flakes melted as soon as they touched the rocks. Also the nights were growing dark, so that we no longer had to darken the windows so that I could sleep. People at home seem to think the weather in Greenland just the same all the year round, and when they saw a picture of me sitting on the rocks and crocheting, they couldn't understand how I could do it. I do not know whether I should enjoy a winter there or not, but little Marie seemed to have weathered it remarkably well. Dear little snow baby! How we all loved her, no wonder the Eskimo women came from all around to see her and give her presents.

One thing gave me quite a surprise. That was to find a small church at Godhaven. Here we attended service on Sunday, and must have shocked the natives, as we sat together, not having noticed upon entering that the women were on one side and the men on the other. The schoolmaster was preacher as well, and as near as we could make out, the service was much like the Lutheran. Space will not suffice to tell all I would like to about the different Eskimos and our intercourse with them. Others have told of the country and the dogs whose howling at night is like so many wolves. The two dogs who lived next to us were soon fast friends of mine, courting my company for benefits received. At first they were afraid, though not so much as I, but soon would come to the door and poke their noses in to wait for food.

I never saw anything more amusing than a little incident that happened one day, showing how the natives feel about throwing away anything eatable. About twenty of the women and children were out on the rocks drinking coffee

and gossiping—at least so I supposed—and they had given me a particular invitation to be present. I thought I would give them a little treat, so I carried out a pail of lemonade, which they drank with keen relish. When it was gone I gave the lemons remaining in the pail a toss, when presto, each piece was clutched from the ground as if it had been worked by a spring. I do not remember ever seeing these people show a dislike for anything we gave them in the line of food, but imagine they may have suffered somewhat from its variety.

A REVERIE

At length the time for the ship to return drew near, and we told the natives we would give twenty biscuits to the one who first announced it to be in sight. Early on the morning of September 5, Daniel rushed in out of breath crying "oomiaksua" (the ship). Yes, it was true, and before long appeared old Keshu, the Cape York Eskimo, who was so fond of "Lee," and had been watching for him ever since the ship had started back, and such a jabbering took place that I couldn't tell which was Eskimo and which American.

When he found that Mr. Lee had a "koona" (wife), he seemed to take it as a great joke, but told him he approved of me because I didn't shrink from shaking hands.

Soon we received calls from the different members of the ship's party, and in a short time were back on the "Hope," bound for home. It almost seemed to me that I was leaving home, I had enjoyed it all so much. On the return trip we were greatly entertained by the interest which the six Eskimo exhibited as they drew near civilization; all except Ahtungua, who was so sick all the way. The poor things were horribly frightened when we were enveloped in a very dense fog, and the fog whistle blew every few

minutes. When it was understood by Nookta that we were in some danger, he began to pray. "O, Father Spirit, send the fog away," as they told me that his jargon meant. It was rather surprising, to say the least, when shortly afterward, the fog suddenly lifted.

All things come to an end, and so did our delightful honeymoon. Like all other Arctic travelers, we feel drawn by the magnet of the north, and long to visit again that land of snow.

A TRAGEDY OF THE FAR NORTH

WALTER WELLMAN.

Walter Wellman, journalist and explorer, was born in Mentor, Ohio, Nov. 3, 1858. Led an expedition "The first Dash for the Pole" in 1894; in 1898-99 commanded an expedition in search of the North Pole, and reached Lat. 82° N., by way of Franz Joseph Land, and discovered many new islands.

WALTER WELLMAN

A TRAGEDY OF THE FAR NORTH

By WALTER WELLMAN

ONE OF the most extraordinary tragedies known to the history of Arctic exploration fell among the experiences of the Wellman Polar Expedition of 1898-9. The story of this tragedy has been told, in part, in many languages. But I purpose here to tell it all. It is a story weird, uncanny, pathetic; yet it carries the saving grace of rare human courage, of unexampled fortitude, of inspiring character-stamina. The hero of the tale is a humble Norwegian sailor. Paul Bjoervig is his name. I know him well, as I should, having bunked and messed and worked with him many days and nights, having slept in the same bag with him, having seen him in danger and distress, but never knowing him to show the white feather.

My first acquaintance with Bjoervig was when he became a member of my first Arctic expedition, a summer trip to the coast of the Northeast Land of Spitzbergen. In that journey we had no great cold to contend with. In fact, our troubles and dangers arose from too much heat. Day after day and mile after mile we floundered about in broken, drifting ice. Every half hour one of us was down in the sea to his middle. We waded, we wallowed, we sozzled in the icy water. We knew not what it was to be dry, day or night. Amid all these trials and tribulations Bjoervig was the most adventurous spirit. If there was a bit of dangerous work to do, he was sure to be the first to plunge in. If some one must dive into the sea to rescue a sledge or a piece of luggage, he was the one to dive. He appeared to enjoy it. If ever man loved the Arctic, Bjoervig did. He sang and laughed at his work. If he went down into a porridge, half ice and half salt water, and was pulled out by the hair of his head, he came up with a joke about the ice-cream freezer. When he was not at work he was telling stories. He was the wit, the humorist, the unfailing optimist, the dare-devil of the party. A true Viking of the ice-country was Paul Bjoervig.

One day three men were out bear-hunting on an island. Two of them had rifles, one didn't. The last was Bjoervig. They found a bear, wounded him, and chased him to the top of a glacier. There Bruin stood at bay. One of the hunters went to the left, another to the right. Bjoervig laboriously mounted the ice-pile to scare the beast down where the others might get a shot. But one of the hunters, becoming impatient, started to climb up also. On the way he lost his footing and fell, sliding forty or fifty feet into a pocket of soft snow. At that moment, unfortunately, Bjoervig frightened the bear. Leaving the summit of the ice-heap, the beast slipped and slid straight toward the helpless man who was floundering up to his arm-pits below. Apparently the man's life was not worth a half-kroner. In a few seconds the bear would be upon him; would claw him to pieces; bite his head off; chew him into bits. The brute was wounded, furious, desperate.

Paul Bjoervig saw what he had to do. He did not hesitate. He followed the bear. From his perch at the sum-

mit he threw himself down the precipitous slope. He rolled, fell, slipped, caromed, straight toward the big white beast. An ice-bear, mind you, is the antithesis of a good many men. At a distance from danger he is an arrant coward; in close quarters, when cornered, or hungry, or desperate, he fights like a Bengal tiger. Paul knew all this. There was nothing about the tribe he did not know. He had no weapon but an oaken ski-stav, a mere cane. But he made straight for this bear, just the same. Down the hillock-slope he came, bumping and leaping, and yelling at the top of his voice. His cries, the commotion which he raised, the vision the bear saw of a man flying down at him, frightened the beast half out of his wits; diverted his attention from the imperiled hunter to the bold pursuer.

This was what Bjoervig was working for. The bear dug his mighty claws into the ice and stopped and looked at Paul; but Paul couldn't stop. The slope was too steep, his momentum too great. Now he was thirty feet from the white fellow, now twenty. He dug his hands into the crust of the snow; he tried to thrust his ski-stav deep into the surface. It was in vain. Now he was almost upon the bear; the beast crouched to spring at him. Another second, and it would all be over. Crack! The rifle speaks; the man down below has had time to recover his equilibrium; the bear tumbles over, growling fiercely. Another shot, and the brute is done for. Paul and the bear roll down together.

"You saved my life," says the man with the gun, when Bjoervig has picked himself up.

"No, no," responds Paul, whipping the snow out of his hair, "you saved mine."

Of course I took Bjoervig with me when I sailed on the second Wellman Expedition in 1898. This was a more serious undertaking. It involved wintering in the far north, and a sledge journey at the height of the cold season. Leaving Tromso, Norway, late in June, in the Arctic steamer Frithjof, we took our Siberian dogs aboard at Archangel, Russia, and then forced our way through the drift ice to Franz Josef Land. After vain efforts to get farther north with our ship, we established headquarters at

Cape Tegetthoff, Lat. 80° 4′, and prepared to pass the winter there. But the North Pole was our objective, and to facilitate progress toward it when the time should come for the supreme effort, which would be the following spring, we established an outpost about the 81st parallel. As this outpost afterward became the scene of the extraordinary tragedy of which I am writing, and as the question has been often asked why it was established, what good purpose it was designed to serve, a word or two of explanation should here be entered.

The aim of every Pole-seeker is to get his base as far north as possible; that is, to assemble his supplies and his outfit of all sorts as near to the Pole as he can get them. The state of the ice was such that we could not force our ship more than a few miles beyond the 80th parallel. But before the winter set in we endeavored to push an outpost as far to the north as we could. The economy of the outpost was that all the surplus supplies assembled there could be used by the Pole-seeking party the following spring. If able to find so many hundred pounds of food at the outpost, they would be saved the labor and time of dragging that much from the base. Travel in the Arctic region is more a matter of weight than of distance. If one could go to the Pole and back without carrying food or other baggage, the Pole would have been reached many years ago. But everything must be carried—food for men and dogs, tents, sleeping-bags, extra clothing, guns and ammunition, scientific instruments, fuel for melting ice into drinking and cooking water, a boat of some sort for use in case of meeting open water or crossing channels in the ice. Nothing except ice can be had on the way—no game or food or fuel of any sort. Enough must be carried for the outward journey and for the return trip. Thus the weights at starting are sure to be pretty heavy, pare them down to the lowest possible limit though one does. The heavier you are loaded the slower will be your progress; hence the advantage of having some of your supplies advanced a distance along the road. If it were possible to have depots at various points on the way to the top of the earth, that would be ideal. Frequently every Arctic man is asked: "Why don't you use two or three

years in establishing depots, one beyond the other, and then when you have placed supplies all along the road make your journey up and back, pushing from one outpost to the other?" The answer is very simple: So far as the land goes this is just what every Pole-seeker tries to do. But it is useless to establish depots upon the sea-ice beyond the land, for the conclusive reason that they could never be found again, except by rare good luck. Even in winter the ice-sheet is never at rest. It is constantly drifting to and fro, with a general movement in that region, as was shown by the voyage of the Fram, toward the west. If one left a depot upon the ice he could never be sure the ice had not opened there during his absence and destroyed it. On returning from their sledge journey, Nansen and Johansen made no effort to find the Fram again, though they were at no time more than 115 miles from the ship, and on their southward march, with a dreadful and doubtful prospect before them, they must have passed within 30 or 35 miles of her at farthest.

Our winter headquarters were established at Cape Tegetthoff, and there the main party passed the winter. From this point a party was sent out in August to establish the advance station. The principle involved in this plan was precisely the same as that employed by Lieutenant Peary, who passed the winter at his headquarters at Etah or Cape Sabine, but used as an outpost or depot Fort Conger, Greely's old house, 200 miles to the north. The party sent out to establish our outpost stopped at Cape Heller; there they built a hut of rocks. A few pieces of driftwood served for the ridge-pole. The hides of walrus, killed in the water pools of Austria sound, near by, formed the roof. In this hut were accumulated about a ton of stores for use the following spring—sledges, boats, and other articles needed on sledge journeys. Forty dogs were there also, and for their sustenance during the winter the flesh of fifteen walruses was cut up in small squares and stored in a bin built of snow blocks. To protect the hut from the winter's storms high walls of snow were built, and these made the premises look so much like an old-fashioned fortification that Mr. E. B. Baldwin, leader of this party, named the place Fort McKinley.

As soon as everything was made snug for the winter Mr. Baldwin, pursuant to his instructions, asked for volunteers to remain at the hut through the winter to guard the supplies and care for the dogs. All five of the Norwegian members of the party offered their services, and great was the disappointment of the three who were not chosen. The two men assigned to the task were Paul Bjoervig and Bernt Bentzen, of Tromso, Arctic sailors, neighbors, and warm friends. Together they had often talked of the pleasure it would be to pass a winter in the Arctics in a little hut well stocked with food and tobacco, and this was to be the realization of their dream.

Their enthusiasm was not due to inexperience. Paul Bjoervig was a veteran Arctic sailor and traveler, as we have seen. Bernt Bentzen had been a member of Dr. Nansen's crew aboard the Fram on that famous drift-voyage through the polar seas. Both men were happy and well when their comrades left them and started for our headquarters at Cape Tegetthoff, just at the beginning of winter. It is a coincidence that but a few miles to the westward of this hut is the spot where Nansen and Johansen passed the winter of 1895-96 in a similar structure, built out of such materials as could be found upon the ground.

On February 18 we set out from the winter quarters on our way toward the Pole. There were four of us, Emil and Olaf Ellefsen, Daniel Johansen, and the writer. My American comrades were ill and unable to go. We had started very early, earlier than any other party had ever set out in high latitudes. The sun had not yet risen, and the days were short and dark. Why did we start so early? Because the season of travel in the Arctic is a limited one, being restricted to the 110 or 115 days which elapse between the coming of dawn and the warmer weather of early summer. The winter is too dark for travel; in the summer the surface of the ice which covers the polar sea is much broken up, the snow is soft and "sticky," and pockets in the ice are filled with sludge and water. It is anything but a pleasant task to crawl out of your snug winter hut, in the dim dawn-light, and take to the field, living in a tent, working like a plow-horse, and trying to sleep in a bag half-filled with ice in a temperature of 50 below zero. Had

we waited a month or so the weather would have been better, the light brighter; but we needed every day we could get, every hour, and so we broke all records by setting out before the first glimpse of the sun was to be had at the 80th parallel.

Fort McKinley was our first goal. There we were to take on more sledges and dogs, and increase our load of provisions. How had our men there passed the winter of their exile? Was all well with them? These were important questions, for upon the dogs and stores at the outpost we depended for an increase of our sledging strength in the race against time and distance to the north. Bjoervig and Bentzen had been promised that we would raise their siege in February, and eager were we all to keep our word. The storms delayed us, and at one or two camps the wind blew so hard that pitching our tent was out of the question, and we had to be content with pegging down its corners and crawling under—any place to escape the fury of the icy blasts. When better weather came we made hard marches, and in the afternoon of the 27th we had the satisfaction of seeing the ridge behind the Fort loom up in the white distance.

Soon the dogs at the Fort set up a shout of welcome to their approaching brethren, and the latter, just to show what they could do when they had a personal object in view, started off at a rapid run, dragging sleighs, men and all after them, although hitherto they had crawled at a snail's pace and had made progress at all only when helped by their drivers. At the foot of the hill the men stopped and held the excited teams that I might walk on before and be the first to greet the two exiles. But aside from an overturned boat, half buried in the snow, a collection of empty biscuit and provision tins and a group of dogs chained to the top of a bank of ice, I could see nothing whatever resembling a human habitation. "The hut is just before you, sir, right behind the dogs," said Emil Ellefsen, who had been here before.

There is not an atom of superstition in my mental composition. I never had a presentiment or anything of that sort. But it is the plain truth that as I picked my way up the rough snow-bank and through an array of long-haired

dogs, all howling and leaping and straining at their leashes, I knew something had gone wrong at the hut.

That instant a rough human figure emerged from the mouth of a tunnel leading down into the snow-bank. The man held a rifle in his hand. He was dressed in furs. His face was as black as a stoker's.

"Bjoervig, how are you?"

"I am well, sir, but—but poor Bentzen is dead."

We stood silent for a moment, hands grasped, and looking into each other's eyes. A tear trickled down upon Bjoervig's black cheek and froze there. Then his countrymen came up, and when he told them the news these simple-hearted fellows were as dumb as I had been. It was Bjoervig who did the talking. We only listened and watched him, being but dimly conscious of the true nature of the tragedy within whose shadow we stood. Bjoervig talked and laughed and cried by turns. But he did not forget his hospitality. He was both a man and a Norseman.

"Come in, sir, come in and have some hot coffee. You must be tired from your journey."

He dived down into the mouth of the tunnel, pulling me after him. First we entered a cavern in the snow where a mother dog lay nursing a hairy, squeaking little brood. Hardy puppies these, opening their eyes and gulping milk in a temperature 70 degrees below freezing. The mother dog licked Bjoervig's hand and growled at me. Now we went down on our hands and knees and crawled through an opening in the rock wall of the hut. A bear-skin was hung there for a door. Once inside I tried to stand erect and bumped my head against the frost with which the ceiling was covered. It was so dark in there I could see nothing at all, and Bjoervig led me to a seat.

"Sit down, sir, sit down and rest yourself, and I'll have the coffee ready in a moment."

At one side of the hut, in a niche in the rocky wall, a bit of fire was smouldering. Bjoervig put on a few pieces of dried driftwood and a big hunk of walrus blubber and the flames burst out. Very cheerful and bright the fire looked, but not a particle of heat did we get from it. What was not used in boiling the coffee went up the chimney.

Three feet from the flames the rocks were white with a thick coat of hoar-frost, and the walls and roof glittered like a bed of diamonds. It was a strange little den, and to me it seemed colder than out of doors. The brilliant fire was but mockery. Fairly well illuminated was the end of the hut where we sat, but beyond was a gloomy recess from which the light of the flames was cut off by a pier of rocks which served as a support for the roof. There was no window.

Bjoervig told me about Bentzen. The poor fellow had been taken ill early in November. All through that month and December he had been unable to get out of the house, and most of the time he spent lying in his bag. Occasionally he was delirious. Death came the day after New Year. Paul paused, and for lack of something else to say I asked him where he had buried the body.

"I have not buried him, sir," was the reply, "He lies in there," pointing to the dark end of the hut.

"Why did you not bury him, Paul?"

"Because, sir, I promised him I wouldn't."

I shall never forget that moment. At first the words just uttered did not appear to mean very much—only that a dead man had not been buried. Gradually the full proportions of the tragedy dawned upon my consciousness. This man with the soot-blackened face had been compelled to pass two months of the Arctic night in this cavern with no other companion than the body of his friend. I lit a little oil-lamp and made my way into the dark end of the hut. On the floor at my feet lay a one-man sleeping-bag of reindeer skin, empty, with a blanket tumbled over it, and showing signs of occupancy the night before. Just beyond, within arm's reach, lay a similar bag. This one was occupied. The flap at the top had been pulled carefully over the face of the sleeper within. Bag and contents were frozen as hard as a rock.

There, side by side, the quick and the dead had slept for eight weeks!

As I looked at this weird scene amid the shadows under the scintillating roof of hoar-frost, and thought of the long days that were as black as night and the long nights that were no blacker than the days, that this thing had been so,

and of the ordeal it is for any one of us when compelled at home to sit even for a single night with companions in a brilliantly lighted apartment by the side of a dead friend, and then of this living man who had lain there absolutely alone by the side of the dead through days, nights, weeks and months of silent vigil, I marvelled that Paul Bjoervig was still sane.

But he was sane. He was wholly rational. Now and then his voice trembled, or a tear coursed down his black cheek. The long strain upon his courage, his stamina, his sanity, was at an end. So great was the relief that he alternately laughed and cried; and then told stories, and cracked jokes, trying to be his old self again. But in the end his emotions overcame him, and to get away from our curious though sympathetic gaze he would go out and take a walk by himself. We kept watch of him, fearful lest his reason might give way. But the hero of these two months of supreme trial was not made of the stuff that surrenders. He pulled himself together as fast as he could. That night, poking my head out of my sleeping bag, I saw Paul sitting by the fire—the bright, delusive fire that could have no effect upon the 40 below temperature in the hut—smoking his pipe. Thus he must have sat night after night during that dreadful vigil. So hard is it to shake off habits!

On the following day Paul helped us drag out the body of Bernt Bentzen and carefully bury it in a hole which the wind had hollowed out. It was a bitter day, 45 below zero, and a fierce blast blowing down from the glaciers. But the most industrious man of us all, after the little funeral ceremony was over, was Paul. For hours he was busy chinking up all the openings in the walls around the rude tomb.

"I promised him the bears and foxes shouldn't get him," he explained.

They never did. To this day that lover of the great white world sleeps in his tomb amid the eternal rocks and snows of Cape Heller.

THREE FAREWELLS TO PEARY

HERBERT LAWRENCE BRIDGMAN.

Herbert Lawrence Bridgman was born in Amherst, Mass., May, 1844. In 1894 made a voyage to the Far North in the "Falcon," as a member of the Peary Auxiliary Expedition. He undertook a second and third Arctic Voyage, as commander of Peary relief expeditions, in 1899 and 1901.

HERBERT L. BRIDGMAN

THREE FAREWELLS TO PEARY

By H. L. BRIDGMAN

THREE times it has been my fortune to bid farewell to Peary as he turned his face to the North. Undaunted, untiring, yielding family and friends to home and country, the fearless explorer, faithful to duty and ideals, looked his grim, silent antagonists again eye to eye, and renewed the struggle between man and nature—in simplest terms, the unending duel between mind and matter.

The first parting was on Tuesday, August 28, 1894. All the bright morning, the Falcon was plowing its way steadily northward, reversing its course of the day before, with the white west coast of Greenland fifteen or twenty miles to the east, and the sharp and regular outlines of Conical Rock almost dead ahead. The massive ice cat-

aract of the Petowik glacier grew steadily nearer and clearer on our port bow. We had cleared all the loose floating ice through which the boat could not pass, and about 10 o'clock it was evident that the final moment was close at hand. "Mat" was busy getting everything to rights in the whaleboat, a handsome, stately craft. Fuel supplies, instruments, and all being in readiness, she was lowered into the water. Lieutenant and Mrs. Peary were alone in the Falcon cabin, and here was their farewell.

All our flags were again sent aloft, the stars and stripes, the auxiliary blue and white burgee, and the Falcon's owners' signal; and we all tried to be as gay and brave as possible. Hardly had the ship stopped her engines before Lieutenant Peary, in a full sealskin suit with hooded coat, came on deck, and rapidly giving every member of his own returning party, of the auxiliary, and the officers of the ship, a cordial grasp of the hand, with a personal "good-by," and imprinting a farewell paternal kiss upon the rosy unconscious cheek of his little daughter in her nurse's arms, he was over the rail, in the boat, and straightening out the natives at the oars.

"Mat" had the tiller and as the boat gathered way, and swung clear of the Falcon, all of us on board lined up on the rail and gave the gallant leader and his crew three of the most rousing cheers of our lives, to which he answered in clear and hearty terms, "Thank you! A safe voyage home and success to all!"

The Falcon's rusty old gun again spoke its loudest farewell; the whistle gave three blasts; the helm went hard over; the engine went full speed ahead, and we parted company, one for home, friends and country; the other for solitude, danger and duty.

As vision failed and lineaments became indistinct, our last view was of the tall, erect, fur-clad explorer, standing amidships, and again, by the signal code bidding us good-by and good fortune, as his prow was pointed northward and poleward. Half an hour later we saw a white speck on the dark expanse of waters, telling us that the boat had set her sails to the favoring breeze, and that all was going well with her gallant party.

Etah, like other and older summer resorts, had in 1899

a short season and a merry one, and like them, closed it in a blaze of glory. Not even its great naval review, when the stars and stripes of America, the red ensign of Great Britain, and the white crosses of Norway, were simultaneously displayed in its little harbor—an event never seen on sea or land before—could match in spontaneous, popular enthusiasm, the departure of the Diana for home on Monday morning, August 28. In the language of the effete South, we should say we left shortly after midnight; in the more correct language of Etah, where there is neither noon nor midnight, we departed soon after the sun had crossed the lower meridian.

Hardly had Monday begun when the Diana's lines were cast off from the rocks, a natural pier along which she was moored with 70 feet of water under her keel, and riding at 40 fathoms of anchor chain, and the steamer slowly swung off into her course, heading westerly and outward, down the bay. On the summit of the rocky knoll, under the flag of his country, bareheaded, and in the familiar blue flannel field suit, stood Peary with his two companions and his faithful native allies, while strewn all along the cliffs in wild confusion, were the hundreds of packages, many tons of provisions which we had worked hard to land the day before, looking as if a first-class freight wreck on a trunk line had just occurred. All the Diana's flags, the stars and stripes at the fore, were flying; over Peary's little red caboose and on several of his tents the same flags were displayed, and as the propeller turned and we began to move, everybody cheered again. First, the quarter-deck winding up with a tiger; next the men on the forecastle deck; then the hoarse whistle of the Diana woke the echoes far up the fiord, and answering from the shore came the response, American and Eskimo voices uniting in good hearty soul-stirring tones. Then the Princeton rifles took it up, and volley after volley pierced the air to be answered in like manner but in less volume from the shore, for ammunition to those who stay is not the burden to those who go, and as we steamed steadily along down the harbor to Sunrise Point, we watched the forms on the shore grow dim in the dusky dawn and mingle indistinguishably with the sombre and rocky background. Then

the red light boxes, left over from some political outburst in our land of the free and home of the brave, were brought on deck and opened, the Diana made her final exit from Etah with all the peculiar and mysterious glories, so far at least as color was concerned, of the classic and time-honored transformation scene. It was all easy and natural enough, and best of all, genuine. We had resolved doubt and fear, had found Peary and his company well, fortune was auspicious, and we were leaving them thoroughly " well fixed " in body and in mind for the winter and the great attempt of the spring. Why should we not let the world know it; to Peary and to one other at least of the company, the pleasure and significance of the occasion were intensified by the parting on the deck of the Falcon. Then was the grim resolution, if not of despair, at least of the never-say-die, American pluck.

The Erik on the last Wednesday of August, 1901, was laboring around the unnamed point, guarding the northern side of Herschel Bay, on the east side of Smith Sound, and about ten miles south of Peary's headquarters at Payer Harbor. In every direction seaward, only impenetrable ice could be seen, and but a narrow channel of water like a canal, not enough with which to handle the ship with any degree of safety, was available. Four days before, Peary had said to me, " There is evidently an undercurrent of feeling on the ship that you are to remain for the winter; that the Erik cannot free herself from the ice, and that it will be impossible to go home. But I want to assure you that there is not one chance in a hundred of this; under no circumstances will we take any avoidable risk; we will stand by and work along the shore as far as possible, when if we find that we cannot reach Payer Harbor, we will then land our Eskimo, dogs, meats and supplies, in a safe and accessible camp, and I will do the rest myself."

Herschel Bay shaped like a horsehoe, and, perhaps, a couple of miles in depth, and half that in breadth, is admirably adapted for Peary's purpose, and it was doubly gratifying and significant that upon his first reconnoissance on the southeastern point, where he decided to make his camp, he found evidence of former settlement, showing clearly that the place had been, in the old time, inhabited.

No sooner had Peary selected the site for his camp than there were bustle and activity on board the Erik. Not so much that we were eager to get rid of our leader, but that it was imperative on every account that the favorable conditions should be improved, and that we should land all our stores and supplies before the ice could, by a change of wind, come in and drive us out. Every man and boat was set at work, and in two hours or less the tents were up, the natives were on shore, and the beginning of a booming town of the mining variety was visible; all the dogs and all the meat were landed on the opposite shore, and before we "turned in" that night, the greater part of the work of debarkation was completed. Next morning Mrs. Peary and Miss Peary visited the new encampment, and the remaining articles of equipment and stores were taken over in the boat, so that by the time dinner was announced, practically everything was ready for the final departure.

Lowering the boat, first went the natives, the gallant fellows who had stood faithfully by their leader in many arduous marches and weary campaigning, obeying him with implicit fidelity; then the ever-faithful "Mat," who handled the natives with a tact and skill which amounted almost to genius, and then Peary himself, after the last good-by and hand-grasp with every one of us, who bade him Godspeed. It was not strange at all, that when little Marie said in broken accents to the loyal steward, "Good-by Charlie, take good care of my father," that some of us found a sudden attraction in the main truck, where our stars and stripes were flying, and that we all of us realized that this was one of the moments which may be historic. Mrs. Peary, on the quarter deck, bade her husband farewell, and then with the same self-possession and confidence which are a part of his nature, Peary himself went over the side and into the boat, amid our cheers and the volley of our rifles.

In a few minutes came the inevitable transition from the sublime to the commonplace. Mr. Peary, in the hurry, had left his mittens, and down from the bridge came a member of the party with them in his hands. Quickly lowering the boat, I jumped into it, and was rowed across

a half mile or so to the camp. Peary seeing us, came down to the edge of the ice-foot, and there, handing him the mittens, I received again the final hand-grasp; as strong, as confident, and as loyal as ever, and pledging again hope, faith and success. Returning to the Erik, Peary called me back. "Keep your flags up," said he, "until you are clear of the ice; we will see you through our glasses, and when we can no longer make out your flags, then we shall know that you are safely on the way home." Peary's injunction was obeyed, our flags were flying until 6 o'clock the next morning, when to my great satisfaction Capt. "Sam" announced, "We are clear of the ice, sir."

WRECKED ON THE COAST OF GREENLAND

PROFESSOR G. FREDERICK WRIGHT.

Professor G. Frederick Wright, of Oberlin College, was born at Whitehall, N. Y., January, 1838. Explored the Muir Glacier in Alaska, 1886. Was member of the Greenland Expedition in S. S. Miranda, 1894, to study glacial formations in the Far North. Professor Wright has been an extensive traveler in all parts of the world and a voluminous writer upon scientific subjects.

PROFESSOR G. FREDERICK WRIGHT

WRECKED ON THE COAST OF GREENLAND

By G. FREDERICK WRIGHT

IN THE 7th of August, 1894, the steamer "Miranda," with a company of tourists under charge of Dr. F. A. Cook, put into the harbor of Sukkertoppen, on the west coast of Greenland, and was cordially greeted both by the two cultivated families who represented the Danish government in that district, and by the three or four hundred Eskimo who were clustered in the village on the rocky shores. It was designed that we should remain in the place but two days, while some slight repairs were made to the steamer, but these two days were sufficient to allow our party to make a most interesting trip in boats forty or fifty miles up the Isortok Fiord, which penetrates the pasture grounds of the few remaining reindeer that have survived the introduction of firearms into Greenland. The excursion was doubly interesting from the fact that two or three glaciers enter the fiord through tributary valleys leading down from the main Greenland icefield, which stretches for an indefinite distance to the northeast, and which we were subsequently to visit.

We were back at Sukkertoppen on the 9th, ready to start for the far north. As is well known, the "Miranda" was not a fortunate ship. On our way up we had run into an iceberg in the Straits of Belle Isle, which stove a great hole in her iron plates above the water line; but fortunately the sea was calm, and we were near St. Charles Harbor in Labrador, where we put in for temporary relief,

and then returned to St. John's, Newfoundland, for permanent repairs. Nothing daunted, however, we had set out again for the Greenland shores, and, after much trouble in getting through the floe ice, had attained our present position, though two weeks belated. Nevertheless, we now ventured out to see what we could in the time left at our disposal.

But ill fortune still attended us. A dangerous reef stretches nearly across the mouth of the harbor of Sukkertoppen. The depth of water over this is such that ordinary vessels can in calm weather sail freely across it. But the "Miranda" was not an ordinary vessel, and the sea was not calm when we started out. Moreover, our native pilot had left us before the critical point was reached. We turned north a little too soon, and the swells which lifted us and let us down dropped us three times upon the rocks, and then carried us over into deep water. It was a bustling time on deck until we were calmed by the ship carpenter, who, after measuring the water in the hold, informed us that there was no immediate danger. But our captain decided that discretion was the better part of valor, and returned immediately to the anchoring-place in Sukkertoppen. Here it was found that the injuries were such as to render the "Miranda" unseaworthy, and it suddenly dawned upon us that we were shipwrecked on the coast of Greenland under conditions which rendered escape considerably doubtful. For there was a large company of us—ninety-three in all, counting the crew—with provisions only sufficient to last us two months; while the Greenland colonies are so small that the addition of such a party as ours for the winter would be sure to exhaust their means of subsistence, and produce a general famine.

However, we all put on a bold face, and made every preparation that was possible to relieve the anxiety of our friends at home, while we left no stone unturned to extricate ourselves from our hazardous position. The first thing we all did was to sit down and write letters home. These we dispatched by some swift *kayaks* (the long, pointed skin-boat of the Eskimo) which hastened southward three hundred miles to Ivigtut, from which vessels were going to start in two or three days for Copenhagen.

A REMINDER OF HOME

The faithfulness of our Greenland messengers was attested by the arrival of these letters, bringing cheerful words to our wives and sweethearts, a month or two after we, ourselves, had put in a safe appearance.

News came to us at Sukkertoppen that there was a Gloucester fishing schooner off the banks of Holstenberg, about a hundred miles to the north. The assistance of this schooner seemed to open the only prospect of escape; so a boat, under the charge of Dr. Cook, was sent immediately to work its way along the coast, and endeavor to find the vessel, and to secure the good offices of its captain and crew. As we could not hope to get relief short of ten days or two weeks, a party of seven or eight immediately prepared to make an excursion thirty miles northward to the glaciers, which come into the head of Ikamiut Fiord, almost exactly upon the Arctic Circle. It is to some of the experiences of this excursion that the attention of the reader is more specifically invited.

The expedition started in the middle of the afternoon. One large boat and two dories were required to carry us and our equipment, while three *kayakers* accompanied us for our protection and assistance. The swells which came in from the southwest were long and high until we reached the lee of a line of islands, in which our guides were careful to keep us as much as possible. In due time great glaciers began to look down upon us from the mountain heights to the east; but they paused in their course long before reaching the water level. A broad opening to the ocean displayed itself between the islands of Sukkertoppen and Sermersut, and permitted the swells from two directions to toss us upon their capricious crests. A hard pull now across the mouth of Ikamiut Fiord brought us late at night, but still amid the splendor of the arctic twilight, to the settlement on the point of the promontory at the northern side of the fiord, where it joins the open channel east of the large island of Sermersut. To our unpracticed eyes there were no signs of human habitation near; but on rounding a low projection of rocks our ears were greeted with the indescribable jargon of a strange dialect proceeding from the throats of twenty-five or thirty Eskimo, young and old, who had crawled out from the

most miserable-looking human habitations that it is possible to imagine. They were, however, friendly voices, and we did not scorn the help rendered us in unloading our boats and hauling them to a place of safety, nor the advice given us as to the most suitable camping-place.

In the morning we took more careful note of our situation, and of the condition of the people who were to be our neighbors. Across the channel, at a distance of about three miles, rose the picturesque eastern face of Sermersut Island to a height of something over four thousand feet, showing clearly the westerly dip of the strata, and concealing the vast ice fields which cover the northwestern slope of the island. Amid the fogs and rains and snows of the next two weeks this mountain outline was destined to fix itself in our memories in innumerable aspects which could never be forgotten. The interest of the scene was enhanced by the squalor of the *igloos* of the Eskimo in the foreground. Of these there were only three, occupied by twenty-five people. They consisted simply of walls of stone and turf about twenty feet square and three and a half feet high, covered over with a slightly conical turf roof, through which, in one or two of the cases, a stove-pipe protruded, for use on the occasion when a fire was built in the sheet-iron cylinder which served for a stove inside; but the turf used for fuel is usually so wet that much of the time a fire is entirely out of the question.

The squalid condition of the *igloos*, or huts, was partly due to a flood which had swept over the village in the spring. How a flood could have risen in such a situation it was difficult for us to see, but the fact had to be accepted, for the ruins of an *igloo* in which two or three of the inmates were drowned was a mute but constant witness to the sad event, and the vivid memories of the poor survivors enabled them to make us understand the story, even when told in an unknown language, so expressive were their gestures and pantomimes.

In August a small stream of pure water from the melting masses of snow which still lingered in the low, rocky mountain rising above the settlement on the east, rushed merrily down past the place, furnishing an unfailing supply for summer use. But it seems that when the deep snows

were rapidly melting in the spring this channel had become so clogged with masses of snow and ice that the water deserted its natural bed, and in a manner which seemed incredible rushed directly across the neck of the low peninsula to the side opposite from that of the natural depression. The possibility of so destructive a flood in such a situation gave us an idea of the accumulation of snow in the winter which we could not otherwise have obtained. It would seem that during most of the winter the snow is so deep that the *igloos* entirely disappear beneath it. The entrances to them must then have looked still more like burrows than in the summer.

CAMP AT IKAMIUT

Notwithstanding this forbidding exterior of the village, we found the inhabitants the best of neighbors, faithfully practicing both the outward observances and the moralities of the Christian religion which had been taught them by their Danish protectors. One of their number acted as catechist, and conducted regular Sunday services in the

largest of the *igloos;* and all of the adults could read and write, though their outward garb was the traditional one which had characterized the people from the earliest times.

On Saturday the weather was unpropitious. The wind blew hard, and the air was full of fog and drizzly rain. We were able to do little but sit in our tent and cultivate the acquaintance of our strange but kindly and well-disposed neighbors. They were curious to see everything we had, and to know both what it was and what is was for. It must be confessed also that we were equally curious to learn everything about them. In token of their good will, the women and children brought us an abundant supply of moss and crowberry vines with which to carpet our tent and to disguise the hardness of our rocky floor.

Sunday morning came, and it was still cold and rainy. While we were eating our breakfast and shivering over our coal-oil stove in the tent, a man of mild appearance and diminutive stature came to the door with a hymn-book and a Bible in his hands, and pointed to them to indicate, as we surmised, that there was to be a religious service somewhere in the settlement. But he did not linger long, and so silently disappeared that we did not see where he went, and hence were at a loss to know where the service was to be held, for the settlement was squalid in the extreme, and no one of the three *igloos* seemed better than the others.

But on going down to our boats we heard singing in one of the huts. Stooping down before the low door and pushing it open, and crawling through a long, narrow passageway to the assembly room on our hands and knees, we were welcomed by motions into the most interesting church service I ever attended or expect ever to attend. To our eyes the room in itself was dreary beyond description. The low walls of stone and turf were reeking with moisture, while water distilled freely from the sod roof in various places, and, as one walked along the passageways, spurted up from the crevices between the loose stones with which the floor was covered. The only dry place was the shelf, elevated about a foot, on the north side of the room, which for the regular inmates was their sleeping place by night and their lounging place by day. A cylin-

drical, sheet-iron stove near the door was now cold and lifeless, because the creeping vines and peat were so wet that it was impossible to kindle a fire. A lamp of seal oil, freshly distilled from raw blubber, was burning in the other

SUKKERTOPPEN, GREENLAND

end of the room, being the special property and care of the oldest woman of the household. In no place could one stand erect.

Yet here was gathered the whole community for Sabbath morning worship. Of course, I could not understand the words of their hymn, but the tune was a grand German choral which I had heard two years before in the cathedral at Cologne. All united in the singing, maintaining perfectly the slow, dignified, and effective movement. Then followed a sermon from the little man, who proved to be the catechist living in the place. This was delivered in the Eskimo language, and with eloquence and effect, though from the lowness of the room the speaker was compelled to remain in a sitting posture. The only intelligible words to me in either the sermon or the prayers were the amens, in which all joined. Finally the service was closed with another hymn sung to an equally impressive German choral.

Monday and several of the following days were bright and clear, enabling us successfully to carry out our plans of making botanical and zoölogical collections, and to explore the little-known icefields at the head of the fiord.

The fiord which we planned to explore extends eight miles inland from the point on which we were encamped, and is from two to three miles wide, though from the clearness of the atmosphere it was difficult to make either of these distances seem half so great. The solemn grandeur of the scenery exceeded anything which it had been our privilege elsewhere to behold. The mountains arose on either side to a height of something more than four thousand feet, which, indeed, is not so high as may be found in many other parts of the world; but the interest is not exhausted in the consideration of any single feature of the scene. Opposite to the entrance of the fiord was the picturesque outline of the peaks capping the island of Sermersut, which alone separated us from the waters of the ocean, while at the head of the fiord a broad projection from the inland ice sheet came down on both sides of a high mountain peak to the water's level and broke off into icebergs, which were slowly floating outward toward the sea.

Nothing could be more striking than the contrast between the opposite sides of the fiord. The flanks of the mountains on the south side, facing the north, were deeply covered with snow fields and furrowed with glaciers. Above the snow fields a series of sharp, needle-like peaks projected just enough to give savage variety to the scene. On this flank the local glaciers presented an object-lesson most perfect of its kind. A series of glaciers approached the water level at the base of the mountain to distances approximately proportionate to that separating them from the ice front at the head of the fiord. Near the entrance was one coming down to within about one thousand feet of the water level. Farther east was one reaching to within about five hundred feet of the level. Farther east still, another came to within about three hundred feet; while still beyond, and within about half a mile of the main projection of the ice front, was one extending to the water's edge, and sending off miniature icebergs to aid in cumbering the waters of the fiord.

About two-thirds of the distance up the fiord there was a favorite haunt of various kinds of birds. At the time of our visit kittiwakes were there in countless numbers. The perpendicular precipices, for a mile or more in length and more than a thousand feet in height, were completely covered with their nests wherever there was a crag upon which they could be built. Indeed, the face of the cliffs was white with these birds as they struggled with each other to secure places for temporary rest, while the neighboring waters were covered with those who were seeking for food or were enjoying the luxury of a cold bath. The firing of our guns would be the signal for the whole colony to rise into the air, when it would seem as if a cloud had suddenly cut us off from the sunlight, while the sound of their strange voices, the note of which is suggested in their name, filled the air and completed a scene that cannot be equaled in interest outside of Greenland.

The day upon the glacier was exhilarating in the extreme. After clambering over the crevasses and pinnacles of ice which obstructed our course for the first half mile, we saw a clear way before us between two medial moraines which came down from a high *nunatak*, or crest of rock, in the distance. While crossing one of these moraines, picking our way between its vast piles of stones, the two Eskimo who had accompanied us thus far began to lose courage, and in the true native style attempted to disguise their real state of mind by calling attention to their boots, saying that they were "no good," every once in a while uttering this ejaculation and pointing to their upturned soles with a despondent look. Of course we humored them, and permitted them to sit down with some of our superfluous luggage to guard. Here they remained all day long, apparently not having stirred from their tracks until we hailed them on our return.

We followed up the vast glacier to the *nunatak*, which proved to be fully seven miles back from the front and to about equally divide the vast ice streams which poured down on either side of it. The total width of the glacier at this point we estimated to be six or seven miles, and at the base of the *nunatak* we were not far from two thousand feet above sea level. Eastward there was nothing but the

horizon to obstruct our view. We were looking out upon the same snow fields which had greeted our vision from Isortok Fiord two weeks before, only now we were on the field itself. Then we had viewed it from the side, at right angles to our present vision. The imagination now came in, with its subtle power, to intensify the interest of the occasion. With the mind's eye there was nothing to hinder our looking across the whole vast waste of perpetual snow stretching to the east coast of Greenland. This was verily a part of the inland ice.

Nor was the interest of the backward glance much less impressive. The glacier at the head of Ikamiut Fiord was only half of what was within our vision. The mountain upon the south side, whose hanging glaciers had so enchanted our vision from our camping-place, divided the glacier we were exploring into two nearly equal portions. One half was pouring into the fiord on the south, through whose long vista we could distinctly see the distant islands in the bay of Sukkertoppen. At various distances along this fiord icebergs glittered in the light of the declining sun, showing that the ice front at the head of that fiord was similar to that in the one which we had more particularly examined.

As before remarked, these glaciers on the south side were all of them thicker near the base of the mountain than at their higher levels. Indeed, they seemed to run down like cold tar and to thicken at the base as a stiff semi-fluid would under the action of gravity. Usually the more rapid melting at the lower levels causes the glacier to thin out near the foot, but here the temperature in the shade is so near the freezing point that the ice melts about as fast near the upper portions of the glaciers as it does at the base.

Another phenomenon illustrating the nature of the movement going on in great glaciers was seen here to special advantage. Where the great ice sheet abutted against the mountain which divided its front into two portions, it was pushed up by the momentum of the movement so as to be two or three hundred feet higher at the base of the mountain than it was a mile away. Indeed, a half mile or so back there was a distinct depression

in the glacier, with the ice higher all around it. It was just such a depression as is made where a current of water is obstructed by some obstacle; the current pushes a considerable distance up the obstruction, and then breaks over the sides to go around it; but ice, being much less fluid than water, moves off in larger swells and more gradual curves.

A FAMILY GROUP

But even an Arctic afternoon has its close. With regret we sought our boats and set out on the return, to go again through the magnificent panorama of the morning. The day had been one never to be forgotten. With the pure air making everything clear within the range of vision; with the consciousness that we were treading where other human feet had probably never trod, and were looking on scenes that few, if any, others would ever see; amid a solitude that was unbroken by living objects except here and there a passing bird or a wary fox, whose tracks surprised us on the newly fallen snow; with gurgling streams of purest water from the melting ice all about us, hastening in channels of deepest blue to plunge at last with deafening roar into some mysterious moulin—the senses were overburdened with material for the imagination to seize upon and work up into pictures of scientific form and poetic fancy. We tried in vain to answer the question which involuntarily arose, Why is there so much waste of beauty and grandeur beyond the reach of ordinary mortals?

One of the most interesting results of our various excursions was the evidence collected showing that even the Greenland glaciers are smaller than they once were. Greenland, too, has had its glacial period, when the whole

border as well as the interior was covered with glacial ice. Everywhere on the mountain sides there were remnants of glacial deposits and of glacial scratching and polishing, which bore evidence that formerly all the channels opening out to the sea had been full to the top with moving glacial ice. Whether the volume of ice was sufficient to entirely fill Davis Strait and join Greenland to North America is more than any one can tell. But that the whole mountainous western border was enveloped with the ice mass, and that icebergs, far more numerous than those which now incumber the North Atlantic, were poured forth from the fiords of Southern Greenland as well as from the northern portion of the vast island, is rendered certain.

Soon after returning to Sukkertoppen, we were cheered by the appearance of the white sails of the splendid fishing yacht "Rigel," from Gloucester, Massachusetts, under charge of Captain Dixon, one of the noblest specimens of humanity that ever lived. By rare good fortune the party we had sent north had succeeded in finding him, and he with all his crew had heartily hastened to our relief. Thinking it was still possible for the "Miranda" to steam across Davis Strait to the coast of Labrador, it was resolved to place all the excursionists upon the "Rigel," and to let the "Miranda" take us in tow.

The "Rigel" was a fast sailing yacht, about one hundred feet in length and of one hundred tons burden. It was already half full of fish, but these were spread over the bottom of the middle hold and covered with salt, over which a tarpaulin was laid. There were fifty-one excursionists to find room in the craft, in company with the eighteen members of the crew, making sixty-nine in all. With such crowded quarters, of course we were not able to take anything with us but the barest necessities of clothing; every superfluous moving thing belonging to the boat was cast overboard. Those who were assigned to the middle hold were packed together like sardines in a box, it being scarcely possible for one to turn over without the whole company doing the same.

It was a beautiful bright morning when we set out upon our homeward voyage. Our hospitable Danish friends

came out upon the harbor in small boats, while the Eskimo gathered in clusters on all the surrounding rocky prominences, a trained company of them saluting us with fireworks as, just at the point of departure, the Star-spangled Banner was hoisted upon the "Rigel," and the whole company joined in singing:—

"My country, 'tis of thee,
Sweet land of liberty."

With the tears rolling down the face of Captain Dixon as well as of many others, the steamer started on its adventurous trip.

For twelve hours the sea was smooth and everything went well; the "Rigel" following the "Miranda" at the end of a cable several hundred feet long, and it was reported that we had gone ninety-six miles. Twenty-four hours more passed without special incident and without any occasion to communicate with the crew on the "Miranda." We had then gone one hundred and ninety-two miles farther, making two hundred and eighty-eight miles in all. But heavy swells were rolling in upon us as the effect of a storm to the south, and at midnight the sign of distress was run up from the steamer. Our captain shouted for all the crew to come on deck, and the others to stay below; but we did not all of us obey. The scene for the next few hours is the memory of a lifetime.

We were informed from the "Miranda" that the leak in the bottom had become unmanageable, so that she must be abandoned in a short time, and we were requested to come up nearer to her. But this our captain refused to do lest we should all be pulled down together. A man was stationed with an ax to cut the hawser in case of immediate danger, and we all lay rolling upon the mighty swells till we could get the crew from the "Miranda" safely on board. After two or three hours of hard struggling with the elements, a boatload came almost within reach of the "Rigel," but was repeatedly carried away from us by the angry waves. At last, however, one after another were all taken on board, the cable connecting the two vessels was cut loose, and the "Miranda," with the lights all burning, the smoke and steam coming out of

her funnel, and her rudder lashed to one side, was left to steam away from us in the mist and darkness, finally to become a derelict on the face of the deep and to seek her unknown fate; while we escaped from the scene as fast as the wind would carry us.

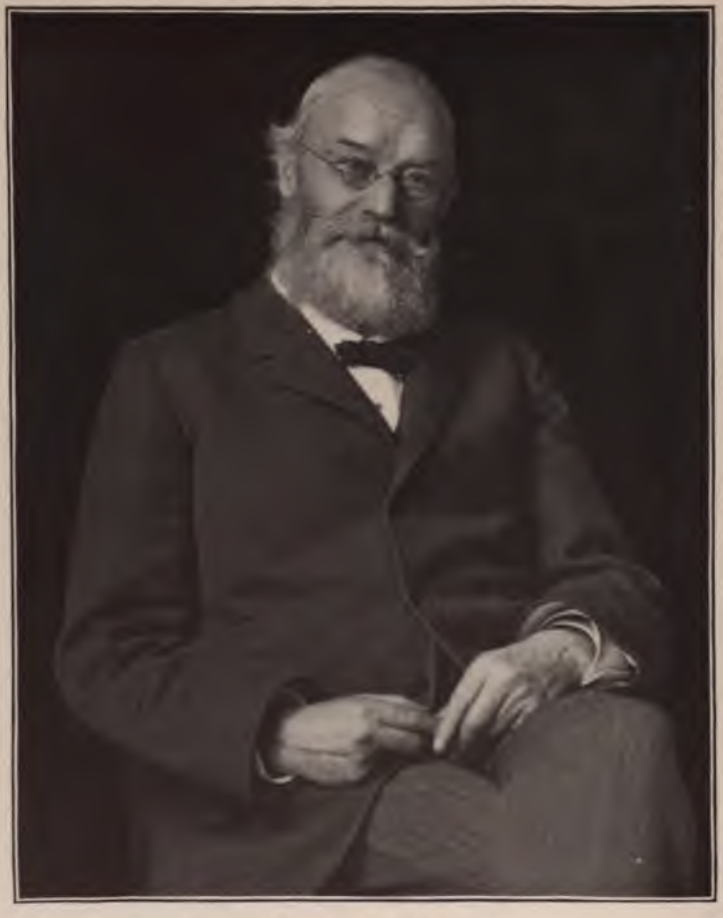
There were now ninety-two men upon this little craft, with a limited amount of water and provisions, to make our way to some port from which we could reach home. When we lined up on deck, we filled it from stem to stern, and were happier in the loss of all our possessions than we had been at any previous time of our eventful trip, since hope now so strongly overtopped all other emotions. After two weeks of such close companionship, during which we sailed past some of the most majestic icebergs that float upon the ocean, and encountered many other scenes of great interest along the coast of Labrador, we reached the harbor of Sidney, and telegraphed to our homes the news of our safety. Not a hair of our heads had been injured, and we all came home wiser if poorer men, while the interest in our experiences has been so increased with the lapse of time that they are among the most cherished memories of our lives.

ANCIENT HARBOR OF LIEVELY, DISKO, GREENLAND

LIFE IN THE ARCTIC REGIONS

PROFESSOR WILLIAM H. BREWER.

Prof. Wm. H. Brewer, of Yale University, was born in Poughkeepsie, N. Y., September, 1828. He was a member of Expedition on S. S. "Miranda," 1894. Harriman Alaska Expedition, 1899. Study of Arctic phenomena in general.



PROF. W. H. BREWER

LIFE IN THE ARCTIC REGIONS

By Professor WILLIAM H. BREWER

ASPECTS which life assumes in the Arctic regions are a delight to the traveler. Its abundance is a surprise alike to the unscientific summer visitor and to the naturalist, while its variety seems to be illogical and contrary to what we should expect of nature. Vegetation grows large and abundant only in warmer climates and warmer waters; and as animal life is dependent on the vegetable kingdom for food, directly or indirectly, we might naturally expect the living things to be very different from what they actually are in the Arctic regions.

In warm climates, individual plants are very much larger than anything of the animal kind found there. Even the elephant is small compared with some of the majestic trees which shelter it. In the cold regions there are no trees, the woody shrubs may be stunted to a finger's length in height, yet the musk-ox thrives on the scanty herbage, and the white bear, among the largest of the bear kind, frequents the shores or seeks its food upon the ice-floes. None of the greater sea-weeds flourishes there, yet the ponderous walrus and more gigantic whale sport amid those icy waters.

In sunny nooks among the rocks, in Greenland, Alaska, and Siberia alike, there is a profusion of small plants, warmed into life in the long days of the short summer, the beauty of whose flowers delight the beholder. Gorgeous colors abound, and often the large size and brilliancy of the flowers seem out of all proportion to the size of the stems which support them. I have found some of the same species near the perpetual snows on mountain summits of the Sierra Nevada of California and on the

high peaks of the Rocky mountains, but the Alpine specimens are of more robust habit, their stems are coarser, and their whole appearance less delicate, less succulent and smooth, than those of their Arctic relatives. Then, too, they have more down or other characteristics which probably protect them from the fiercer sun and drier air of those elevated regions. Beautiful as are Alpine flowers, they lack the brilliancy and delicacy of those whose bloom brightens the desolation of the Arctic.

Then, too, the cold waters abound in the smaller forms of animal life. There are creatures that burrow in the slimy mud in the shallows. Some of the Alaskan marine worms are of great length and of brilliant colors; and there are small crustaceans in infinite numbers, and of many kinds, which furnish food for fish and bird and beast. Sea-fowl often hover in cloud-like flocks over the water, pursuing this small prey.

The whales are always of special interest. To the child and schoolboy no other tales about the savage world have a greater fascination than stories about whales. The adventures incurred in hunting the whale form a precious portion of the literature for youth, and few of us ever get entirely over the liking for it.

We saw numerous whales on the Harriman Alaskan Expedition, and of several species, but no such large individuals as we saw in the Greenland seas on the "Last Cruise of the Miranda." On our way home, in the Bering Sea, north of the Aleutian Islands, we saw an extensive school of whales. Speaking as a landsman, a "herd" of whales would seem like a better term. It extended for miles apparently to the northern horizon; the whales were not close together, but seemed to go in pairs, apparently feeding rather than playing, and most of them traveling in the same direction, blowing as they came to the surface, and showing often an enormous extent of back before diving again. There must have been two score or more of them, but not often were more than three or four in actual sight at once. Six was the largest number I saw blowing at the same instant. Great flocks of screaming sea-birds swept over the same waters, for that was their pasture also.

The whale fisheries of the Bering Sea and the Arctic Ocean beyond, are the most extensive of any that have been pursued of late years, and the most dangerous. We met a fleet of whalers at Port Clarence, just below Bering Strait, waiting the retreat of the ice of the Arctic Ocean from the American coast. Then they would penetrate eastward, where the business is the most profitable, but is attended with peculiar dangers. In Baffin Bay the whalers fear being frozen in; here the greatest danger is of a very different kind. The great Arctic ice-pack retreats northward in summer, it returns as the season advances, and is driven against the American coast, and woe to the vessel that does not escape to the west of Point Barrow, or get behind the shelter of a friendly island. The story of crushed vessels and of heroic adventures along that coast is an exciting one.

We sometimes see white bears and small Arctic animals temporarily in our zoölogical gardens, but those who would see the whale and the walrus must visit them at their own homes; it will be some time before they will call upon us, put up at our aquaria, and receive visitors there.

Sea lions and fur seals abound along the coast of Alaska and its islands. The former are found at places along the coast as far south as Southern California, but the great shore resorts of the fur seal are Pribyloff Islands in the Bering Sea, where they resort in herds of hundreds of thousands, and where they furnish the most fascinating exhibition of wild animal life to be found on the globe.

They spend most of their lives at sea and come to these islands in summer to rear their young, to shed their coats, and to have a social summer outing. The Pribyloff Islands are so much of the time hidden by fogs, that they were not discovered for years after being looked for by the early Russian hunters, who saw the seals passing every summer, into the Bering Sea from the Pacific Ocean. The rookeries extend along the shore at intervals for miles. The animals begin to arrive in May, the males first, where the larger and stronger ones take possession of some particular place on the shores, preferably where there is an abundance of rocks. They fight with each other until the victors have established a title to a homestead. They are zealous

polygamists, and the females, arriving in June, are gathered into these respective families. The larger harems contain twenty or thirty females, but smaller ones are the most numerous. Over each harem an old male presides, perched on some rock in the midst of his family where he can have them all under his eye and watch the approach of encroaching rivals. All of the males by no means succeed in being polygamists, but the patriarch with a single wife is as zealous in guarding his small family as if he were the wealthy owner of a dozen. The poorer individual with but one or two wives is usually to be found crowded as far away from the water as possible by his more successful rivals. He is, however, an interesting creature, for what he lacks in wealth of family, he makes up in his demonstrations of zeal in its defence.

We visited the rookeries on St. Paul Island early in July. Although the herds are very much smaller than formerly they seemed immense, and thousands together were wriggling about their respective locations, or sporting in the adjacent waters. On the shore they are as closely associated as a flock of sheep in a pasture, stretching along the beach by thousands—denser here, sparser there.

The males are four or five times as large, in weight, as the females. They are six or seven feet long and weigh four hundred pounds, more or less. We call these animals popularly "seals," but they are very unlike the true seals or hair seals, some species of which are found in the same waters, and of which still other kind occur in great numbers about the North Atlantic coast, especially of Greenland and along the coast of Labrador. The fur seals are unlike them in looks and motions, and eminently unlike them in behavior during that portion of their lives which is spent out of the water.

Prompted by their natural instincts, these herds are organized into communities which seem to be governed by rules, almost as well defined and as strictly followed as the laws which govern savage communities of mankind. We are told that the time of their coming and going, the preempting and defence of claims, the guarding of the family, the breaking of the camps and disorganization of the community before leaving, the time and order

of leaving, go on with almost the regularity of clockwork. All this seems so wonderful, that the animal has been accredited with a much higher order of intelligence than it, probably, actually possesses. They come in order and in season, and there is but little more disorder in their going. When they leave, they move southward and go through the various passes between the Aleutian Islands, into the broader Pacific Ocean; some of them travel down the Asiatic side; some are seen farther out to sea and still others near the American coast. They certainly go as far southward as the latitude of California, then return by somewhat different routes. Such a voyage could never be done by mere intelligence. But what wonderful instincts guide them? After a trip of a thousand, sometimes over two thousand miles they return to their fog-veiled islands as surely as if the track had been planned on chart and the creatures guided by compass. And they arrive at just the right time; the males first, to locate the home, the females later. The young are born within a few days after landing and are reared on the shore, for the young seals cannot swim until two or three months old. When they have grown large enough to take care of themselves, have learned how to swim well, and can fish for themselves, they start with their parents on their long voyage southward. All this goes on with the precision of an army under orders.

But what a fascinating sight they present when on shore! Sailors in port are not more frolicsome or in more fighting mood. When we come too near, the male who is most interested in the intrusion, advances and barks and growls ominously, opens his big mouth which is much like that of a large St. Bernard dog in shape but much larger in size, and studded with rows of sharp, glistening, white teeth, and says as plainly as animals can say, "Stop"—"Don't come any nearer"—"Be off"—"I don't want you here." You instinctively retreat a few steps, he stops his demonstrations as much as to say, "That'll do at present," occasionally barking to let you know that he means what he says.

They have the least fear of man of any other large wild animal. We cannot call them "wild" in the most popular sense of the word. They will fearlessly allow one to come

to within a few feet of them before they will actively resent a closer approach.

Thus guarding his family, the patriarch is an impressive beast. He is awkward in his progress, which is a sort of compound motion made up of hitching and crawling, the head erect and attention alert. The eyes are large, dark blue, and peculiarly expressive; now glistening with ferocity, as he warns you not to come too close to his harem. You retreat a few steps, and the next moment the same eyes beam on you with a mild serenity, so genial in expression that you slowly and cautiously again advance, perhaps camera in hand, to get a closer snapshot. While adjusting your focus, suddenly comes the warning voice, and he advances a foot or two; the eyes glitter again, their expression heightened by the wide open mouth and gleaming teeth; then you retreat again and peace is declared, but the snapshot has been lost.

The charm of the scene is indescribable. Happening at a specially favorable place for observation, I stayed there by the hour, although there were not more than a thousand or two seals near me. Half a mile farther on they were very much more numerous, tempting me to proceed and see them in still greater numbers, but I spent most of my time while on shore watching the community at this one spot, with shorter visits to some still more limited groups.

The scene where the families are crowded closer together is always an animated one. Some are playing, some sleeping, the males on guard alert; every few minutes turning to some near neighbor who may be watching his own harem, growling and barking defiance with much opening of the mouth. But most of this seems after all to be merely "bluff;" the actual fighting has been accomplished, rights are already established, and the camp has settled down to family life. These manifestations are perhaps only intended to mean, "Now, keep away," or "I've my eye on you!"

The voice is very unlike that of the common seal, or hair seal, but not nearly so impressive as that of the sea lion, which is the nearest relative of the fur seal. The sea lion's voice has the lowest pitch in tone of any animal sound with which I am acquainted. Years ago I was

familiar with it as heard in various places on the Californian coast, from the rocks of St. George on the northern border, southward to near Point Conception. Especially when it broke the stillness of night was it impressive. More than once, sleeping on the ground, in my blanket near shore, I have been awakened by that deep guttural note, and have listened to that loud but low-pitched voice mingled with the sounds of the winds and breakers. I think it the most impressive of the sounds of the night I have ever heard in the loneliness incident to exploration near a rocky shore. The scream of the panther in a mountain forest may be more startling but is much less impressive.

Some of the Harriman party visited a great rookery of sea lions on the volcanic islands of Bogoslov, near the Aleutians. I did not go there, but I had seen enough of sea lions years before to appreciate the enthusiastic comments of one of the party who did go. "It is the sight of a lifetime; nothing else in the world like it!"

A few days after leaving the Pribyloff Islands, the Harriman Expedition anchored in Plover Bay, in Northeastern Siberia, near Bering Strait. A low and narrow sandspit extends into the bay from the foot of the steep and picturesque bluffs on one side. On the outer end of the spit is a small Eskimo village. It was evident that there had been a village here for a very long time and apparently it had once been very populous.

The people of this tribe are unlike any other Eskimo I have ever seen. They differ from the Alaskan Eskimo whom we visited the next day, on the other side of the strait, less than two hundred miles distant, and are very unlike the Eskimo of Greenland and of Northern Labrador. They are somewhat larger than the Alaskan tribe, and very much larger than the Greenland and Hudson Bay Eskimo; and they have a very different type of countenance. The men are well formed, some of them extremely so. This is due to the admixture with the Chuckchee blood of North Eastern Siberia. The men have the crown shaved, as do the Chuckchees, the tonsure encircled by a rather broad strip of very stiff and not very long hair. The countenances are very unlike the Greenland Eskimo. The nose is not so small and is straighter, the

eyes appear less inclined. The people are more robust in every way, have apparently more intellectual capacity, and with probably more natural strength of character and more barbarous instincts. They were no cleaner than their Greenland relatives. They were clother in skins, mostly reindeer, and they live on the product of the sea. The bones of whales were scattered about in great abundance and were used for a variety of purposes. Whale's skulls were numerous. Some of them, half burried in the soil, weather-worn and moss covered, looked as if they might have been there for centuries.

But little drift-wood comes to this desolate coast and whalebones are turned to a variety of uses as a substitute for wood. Whale ribs constitute the posts and other supports of the Eskimo homes, more crooked ribs made a fireplace to hang the pot; the vertebræ are used in many ways. I noticed a shoulder blade used as a door for a summer tent, while another was used for a sort of table.

In winter they live in large houses made by erecting posts of the larger and straighter whale ribs, filled in between with rods making the wall, the whole covered with a roof of walrus hide. In summer, when the floor of these become too wet and muddy, they live in tents made of walrus hide.

These simple people are very friendly and were evidenly pleased to see us. Mr. Harriman distributed presents among them. The tobacco was very highly appreciated, and there was apparently some regret that it was not accompanied with whiskey. I was much amused at the look of wonder of one of the women as she opened the package given her and saw a gay necklace, strung with large glass pearls. She seemed not to know what it was.

The dress of the men, women and children is very like that of the eastern Eskimo. The women carry the smaller children on the back within the ample garment. The head usually protrudes, but sometimes no head is seen: a motion like that of a cat in a bag suggests what is there.

The Asiatic Eskimo, like their neighbors in Alaska, are wasting away, because of the visits of civilized people, and the close of the century will probably find them extinct as a people, now that gold hunters as well as whalers visit the Arctic coast.

PHOTOGRAPHY IN THE FAR NORTH

RUDOLF KERSTING.

Rudolf Kersting was born in Hanau, Germany, 1856. Photographer to Greenland Expedition on S. S. "Miranda," under command of Dr. F. A. Cook, 1894. Alaska, 1891.

RUDOLF KERSTING

PHOTOGRAPHY IN THE FAR NORTH

By RUDOLF KERSTING

IKAMIUT is the most properly named place on earth, "a place without shelter," and still we had pitched our camp on this place, for want of a better one. I was detailed to go to the interior of Greenland with several prominent professors of geology, myself to do photographing, while these scientific men would examine the ice and land formations. Rowing twenty miles toward Ikamiut, not a place was visible along the precipitately rising walls of basaltic rock bordering the fiords, where a landing could be made. Eskimo guides in their skin *kayaks*, darting all about us, picked up dozens of fine ducks which were shot along the route. Three or four little stone houses covered with sod, and a population of about eight Eskimo, constituted the settlement of Ikamiut. I could not understand why people would live in them, until I learned that it was a first class place for catching codfish. These people caught codfish all summer, and dried them for winter use. It was a filthy, ill-smelling place; much fog and rain, bringing despair to a photographer. Everything was wet and at the same time it was never dark enough to change photographic plates, even in the middle of the night.

Clear weather was promised for the next day and everything was made ready for our expedition, the purpose of which was to ascend a glacier at the head of the fiord. My camera was of large size, and I had very compact plates eight by ten inches. A military knapsack carrying nine double plate holders, and a tripod was supported by straps on each shoulder. These holders had to be reloaded, and for that purpose no white light is permissible. Inside of our tent, with dark blankets, we arranged a place where

I could lie on my stomach and with difficulty manage this job, nearly suffocating for want of air and melting with perspiration.

Then crawling with my partners into the sleeping-bag, I found the icewater melting from a glacier above, the result of a previous rain, filtering into our tent, and before morning we were soaking wet. I got out about 5 o'clock and walked twenty steps to the waters edge. There, under the direction of a fat Eskimo girl, with only a seal-skin line and a hook without bait, I pulled out half a dozen large rock-cod, ranging from two to four pounds each. Half an hour after catching the fish, we had them fried and eaten.

SEA BIRDS

A four-mile row brought us to the foot and side of the glacier, though not without considerable trouble, for the Eskimo are superstitious and are afraid to go near glaciers; they never think of going upon them alone. It is in a certain sense dangerous, for large bergs breaking off make no little commotion and may easily upset a boat. The roaring of cracking, breaking, pushing masses of ice, millions of tons, sounds like that of thunder and of battle. Our enthusiastic professors with nothing but alpen stocks and note-books, started at once to climb upward on the smoothest side and I, after making several exposures of the front view, followed in their tracks. I saw no geological problems, but a beauty of form and color which almost paid me for all the trouble of coming to Greenland. The blue sky, the white snow, the dark waters, and the colors of ice, ranging from lightest blue-green to darkest shades, all was exquisite.

Fissures and crevasses made ascent difficult, and soon I was hot and uncomfortable, slippery, deceiving ice, holes

and rivulets, stayed my progress, narrow passages which the others had passed I sat upon and crossed on hands and knees, looking downward a hundred feet or more into bottomless pits on my left and right. Nothing but ice all around, save here and there a strip of gravel and large boulders, lateral moraines, one or two mountain peaks showing above the ice—all these features were photographed; not, as one would think, under adverse circum-

CROSSING A CREVICE

stances, but on the contrary, under a clear blue sky, a brilliant sun playing upon the wonderful waste of ice, making beautiful reflections and refractions of the rays of light.

No dust of any kind is in the atmosphere; it is pure, clear air. It is easy to make good pictures under these conditions, if you study your light. The great difficulty is near the seashore, where with ordinary plates or films, proper exposure is next to an impossibility.

The rocks are of a color which, like the color of grass, will absorb rays of light, while the water, the ice, the sky,

and the snow will reflect them. Therefore, in exposing for light objects, the dark ones will be under-exposed; and vice versa, exposing for the darker objects, the sky, ice, and snow will be so much exposed that they will melt into an opaque mass on the negative. To be certain at all, one should have a good dark room, and develop some plates daily to enable him to keep in touch with the quality of light.

Films work better than plates, the thinness of the celluloid gives less halation and more color values, but the only proper outfit for Arctic photography is composed of iso- or orthochromatic plates to be used in conjunction with color screens of various density. To be prepared for all conditions of work in the Arctic regions a number of lenses from the shortest wide angle to a telephoto attachment are indispensable.

One of the professors, older than the rest, had fallen behind the advance guard, and joined me. We sat down upon a projecting piece of ice, ate our luncheon and drank some of the clearest and finest ice-water imaginable. I spoke of the surpassing beauty, the fine color scheme, of the surroundings. He, in all probability, paid not the least attention to that, but gave the water on the glacier, the hole in the ice, and other things, their proper scientific names, and was happy in his way.

A SLIP

According to his aneroid barometer, we had climbed upward of 3100 feet, and estimated that we had walked about five miles upon the eternal inland ice, which covers all of Greenland. Large nails on the soles of our shoes helped us along considerably, but did not always prevent a

slip and a fall. As I could not carry an alpenstock, I had to be extremely careful on account of my camera and plates. But in spite of my precautions, I came near losing all of them, and myself as well.

The smooth sides of this particular glacier had a descent of about three hundred feet, at an angle of nearly forty-five degrees, with a running brook two feet deep at the bottom. Rocks and moraine debris formed slight projections where they had lodged on the ice. Upon these we often stepped to get a better foothold, but not always with good results. Jumping over a narrow crevasse about two feet wide, I tried to catch a foothold on one of these projections, but it was only a thin covering of earth with slippery ice below.

GETTING BREAKFAST

The impetus of my jump gave me a good start and nothing could stop me from sliding down three hundred feet, with a prospective ice-water bath at the bottom. With photographic plates on my back, tripod in one hand and camera in the other, there was nothing to do but to slide down on the seat of my unmentionables. Ragged and sharp pointed pieces of ice and stone soon reduced my pantaloons to shreds.

Nearer and nearer I came to the water. I closed my eyes, and with a sudden jerk my feet caught securely against a projecting piece of ice on the brink of the stream. The revulsion of feeling was so sudden that I lay still for several minutes; then I crept along the edge to a spot where moraine deposits of large rocks allowed me to jump from one to another. Crossing to the other side and getting my photographic stuff together, I made my way to our landing place and put everything into the boat. There I found a piece of string to tie up the parts of my torn garments which had suffered most.

Rowing to the camp late at night, a sudden storm broke over us, darkening the sky so that we could not see a hundred feet. A wind swept up the fiord, such as can only be found in those regions; progress was very slow, with uncertainty of direction. Finally we saw a light ahead and recognized the point in the rear of which was our tent. The thoughtful Eskimo guide and his assistants, anticipating our dilemma, had worked their hazardous way over rugged cliffs to the fiord, and taking the powder out of their cartridges, had burned it as a signal that we were near home, and to guide us on our way. The night was a most cheerless one, with constant rain, the water running under our sleeping-bags.

The next day I had to unload my photographic plates; everything was wet and muddy. I could find no place for my work except the entrance of an Eskimo hut, an extension used as store-room and kitchen three feet high, with stone wall on three sides, filled with mud and moss, and without a covering. I put oars and Eskimo harpoons on the top, spread our blankets over them, and so made a fairly good dark room. I could just get into it and work by kneeling in the filthy mud.

Half a dozen of the plates I had taken the day before were broken, and with the pieces I made valuable presents to my interested Eskimo friends and spectators, who stood closely around, watching the white man's magic with keenest interest.

A NATURALIST'S ADVENTURES

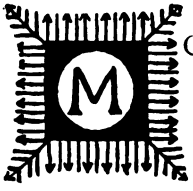
DR. TARLETON HOFFMAN BEAN.

Dr. Tarleton H. Bean was born in Bainbridge, Penn., October, 1846. He was a member of Coast Survey party in schooner Yukon, which made collections and observations in the Pacific Arctic, 1880. Revisited Alaska, 1889.

DR. TARLETON H. BEAN

A NATURALIST'S ADVENTURES

By DR. TARLETON H. BEAN



WEDNESDAY, AUGUST 11, 1880

MORE of this exasperating Asiatic fog this morning, and enough of the delectable swell to remind us that this world is not wholly a garden of roses. Up to breakfast time we had made comparatively little headway toward Plover Bay, owing to light wind and strong head sea. This same light wind and head sea continued all the way and we did not reach our anchorage in Port Providence, Plover Bay, Siberia, until 10 P. M.

Near the entrance of Plover Bay we met the cutter Corwin coming out from a coaling trip. She bore toward

[In 1880 the writer was sent to Alaska by Professor Spencer F. Baird, to collect natural history materials for the United States National Museum. By permission of the Superintendent of the United States Coast Survey, and at the invitation of Dr. W. H. Dall, who commanded the expedition, I joined the party in the schooner "Yukon," and made the long voyage from San Francisco to Wainwright Inlet and return. During the cruise we collected a vast amount of valuable articles and information which have been utilized in various publications. Among the collections which concerned me most were seventy-seven species of birds, eighty-four species of fishes, and one hundred and ten species of lichens, which became the subjects of papers in the Proceedings of the United States National Museum, volumes IV, V, and VII, and in Section I of the Fisheries and Fishery Industries of the United States. The spoon-billed sandpiper was the most valuable bird secured, and the specimen brought by the "Yukon" was the first in any American museum. Two other species of birds were collected for the first time in Alaska. One new species of lichens was obtained, and many of the fishes proved to be unknown to science.

The above extracts from my journal cover the voyage from Port Providence, Plover Bay, Siberia, to Wainwright Inlet and return.]

us and Captain Hooper came on board. From him we learned that nearly all the natives of St. Lawrence Island died from starvation last winter; that he had been within 20 miles of Herald Island and could go no farther on account of the ice; that he could not reach Point Barrow nor beyond Icy Cape for the same reason; that he had seen Nelson at St. Michaels and found him well; he had heard nothing of the missing whalers or of the Jeannette; the whaling fleet now in the Arctic is doing well, having from four to ten whales each.

The bluffs about the Plover Bay region are variously colored—gray, purple, yellowish red, and in the ravines there is still considerable snow. Small streams come down the hillsides in various places. Clouds hang along the summits as if to hide the desolation. Flocks of murres, mormons, guillemots and other birds fly landward and seaward. Gulls and fulmars hover over or rest upon the water.

There are numerous pinnacles off the headlands and jagged nubs along the ridges, yet the hill tops are usually rounded and the visible faces are much broken up by frost. A small settlement is near the west head (entrance to Plover Bay), and we saw a few natives come down toward the water.

As we worked in, a *bidarra* containing eight men from the settlement at Port Providence came alongside and some of the natives came on board. None of them are tall. I should estimate the tallest as not over 5 feet 6 inches. Their teeth are small and short, worn down by much chewing. Their color is nearly like that of the Chinese. Most of them shave a part of the head, leaving a naked space and a hairy rim. One had two concentric naked spaces. They wear deerskin *parkas*, as a rule, with bear-skin collars. Hair seal pantaloons and boots or moccasins of seal are worn. Belts and a few beads and bone ornaments are in use. They employ single paddles. They talk some English and a little of several other languages.

THURSDAY, AUGUST 12

At 10.45 Capt. Herendeen and I left the "Yukon" in a *bidarra* for the head of Plover Bay, taking the seine along.

We hoped to find reindeer and mountain goat. There were three men, one woman and three boys to paddle for us. We took shotguns, rifles and cooking outfit. The day was fine; I found the sun uncomfortably warm in the afternoon. The hills are high, usually rounded, though there are some very broken and jagged edges. Valleys are frequent; in them the soil is wet and there is vegetation but not much grass. Flowers are abundant and very pretty. Willow-wort is one of the common species. Lichens on the rocks are wonderfully fine and exceedingly plentiful.

Near the head of the bay we saw some salmon—probably little humpback, for I know that species to be here—and we tried to seine them but without success. We caught, however, sculpin, sand launce, blenny, and capelin. We saw a great many eiders, females and young. There were geese at the head, but we could not get near enough even for a rifle shot. Seal were very abundant. We stopped to see a party of natives who were encamped for seal and reindeer hunting. The men were well armed with Henry and other good rifles.

The boy sitting beside me had his quid of tobacco temporarily stowed away behind the flap of his ear. Nearly all of the party wore the deerskin parkas and hair seal pantaloons. Some had sealskin boots. When we seined, Sam stripped off everything but his pantaloons and boots and waded in. Sam is a shrewd boy. He said to the captain the other day: "You give me bread. You give him now! Bimeby too many bummer come."

The old man, too, the famous sealer, is very knowing. He seems to understand the reindeer, bear, seal, and other creatures that he meets and must have been successful. His way of telling the nature of the bears particularly is very funny: "Black bear, he hungry, he come man! You hit him knife, he no go!" [Imitates growling and fighting.] "White bear, he smell man, no come; hungry, he come; you hit him knife once, he go, all same man!"

I saw the north star far higher in the heavens than ever before. The trip back to the ship was pleasant, the boat moving smoothly under the regular and easy stroke of the native boatmen.

FRIDAY, AUGUST 13

In the morning natives brought alongside trout and salmon. I tried to make a trade for the salmon but the wretch haggled so long about it that I gave up in disgust.

Captain Herendeen went seining and caught young sculpin, two species of blennies, and young capelin. After lunch he and I went to the spit for birds. We got two species of snipe, wagtails and longspurs, and I killed three marmots and picked up a recently killed ermine. The wagtails were exceedingly hard to approach and the longspurs hung around the huts so closely that one could scarcely get them; then when they did fly away they were hard to overtake, staying only a few seconds in one place. Mr. Dall secured from a native a perfect specimen of banded seal.

I saw one of the gill nets for seal lying on the beach. It is made of seal skin, with stones for sinkers and seal flippers for floats. They are set off from the beach and of course are sunk to the bottom, standing up for the seal to run into as they swim along near shore in search of food.

With a *bidarra* of natives to-day was a little girl, the child of some white man by a native woman. The poor, pretty little thing was white and has no appearance whatever like the rest.

These people are inveterate beggars and exasperating traders. If you go near a hut you are importuned for tobacco and many other things that they think you may have. Cleanliness is unknown among them. The eye is not pleased and the nostril is offended; yet the natives are far better and they look better than some of the Indians, for example. When whales ran up into this bay the village was large and thriving; now it has dwindled to two canoeloads. Whalebone frames are here in large numbers. Blubber houses are numerous, but everything has gone to ruin. An illustration of the cheek of these beggars occurred to-day; one said to Captain Herendeen: "Me see two fish! You give me tobacco!"

SATURDAY, AUGUST 14

Went to the spit again in the forenoon and shot a snipe, a plover, a gull, a wagtail, a longspur, and an ermine

which the natives were trying to kill with stones, men, women and children engaging in the sport. Captain Herendeen shot several marmots with his rifle. We had them for dinner and they were very good. The wagtail that I shot to-day was evidently adult and much better than those I killed yesterday.

At 1.10 P. M. we got anchor and left Port Providence for Bering Strait. I saw red snow abreast our anchorage before leaving. The sea is smooth now.

SUNDAY, AUGUST 15

Calm all day but no swell until after tea; clear and pleasant. Great flocks of phalaropes have been near us off Cape Tchaplin or Indian Point. Captain Herendeen shot a dozen of them. Seal, humpback and finback whales were common. Rodgers' fulmar is abundant.

A *bidarra* load of natives came off from Indian Point in the morning and loafed around until the middle of the afternoon. One of them, the chief, had a nicely made pipe of wood, inlaid with lead and having a lead rim; brass chains, and various charms attached to it. He first put into the pipe, which was of very small caliber, a little wad of reindeer hair, to prevent the tobacco from being drawn through the stem, then put in a very little black tobacco and inhaled the smoke, retained it in the lungs a short time, and slowly exhaled it. This was done just once and the quantity of tobacco used was very small. This chief had a *parka* of tame reindeer, a very pretty piebald skin. One of the men had a doubled string of small white beads in each ear. Hair seal pantaloons and sealskin boots were general. These fellows are tall and athletic in appearance, with something of the Indian in their countenances, though less repulsive. They call themselves "Innuit."

MONDAY, AUGUST 16

Twilight lasts until very late and there are but a few hours of night, for we are now not far south of the Arctic Circle.

TUESDAY, AUGUST 17

We have made but little progress to-day owing to light wind, not fair, and choppy sea. Considerable floating ice

was seen in Mechigme Bay, some of a beautiful green color. Few birds were around us to-day besides Rodgers' fulmar. Some small auks were occasionally seen.

OOMIAK, OR WOMAN'S BOAT

Wednesday, August 18

In the morning we were a short distance south of the Diomede Islands, tacking back and forth and making little northing. At 1.15 P. M. we were about five miles to the westward of Cape Prince of Wales, and could see the huts of the natives but did not care to call in.

Saw a small part of a rainbow arch in the evening. East Cape could be plainly seen. Fairway Rock showed its full height after we left it astern. There was snow on Ratmanoff. Krusenstern Island looks like a mountain chopped off. As we ran abreast of the Diomedes we struck a warm current, and again at 6.15 P. M.; we found the temperature of the water to be 51°. The air, too, was comfortable. One could be on deck without an overcoat.

Sandhill cranes were seen flying towards America. Rodgers' fulmar is our commonest companion; and a murre, apparently the same as the one we saw in Cook's Inlet, and from there all along, is also frequently near us. Puffins are with us occasionally and phalaropes were seen to-day. We have not seen a whale since we left Indian Point. At 10 P. M. we must be not far from the Arctic Circle.

THURSDAY, AUGUST 19

At supper time we were in latitude 66° 45′ N.; longitude 166° 35′ W. Here we saw great numbers of swimming medusæ, and frequently under them were small fishes, of which we caught a great many with a dip-net, and found them to be polar cod. There was a great variety of forms among the jelly-fishes, some of them very pretty. A dredge haul was made immediately after supper, and some good shells, ophiurans, crustaceans, etc., were taken on the sandy bottom.

The temperature is quite moderate; one does not need an overcoat. The water is still comparatively warm; temperature 49° at midnight.

FRIDAY, AUGUST 20

At 2.45 P. M. we were abreast of Point Hope, and at 8.36 P. M. we anchored at Cape Lisburne, in seven fathoms, sticky bottom. At noon to-day we were still in the warm current, temperature 51°.

The settlement at Point Hope showed no signs of life, the natives being off fishing. There were plenty of frames for caches, etc., and at various points along the low shore were large conical piles of drift wood. The dwellings are underground. There is no harbor at Cape Lisburne and but a small settlement. The cape is a lofty bluff, backed by high hills, the highest 849 feet, down which "woollies" came as we were standing in. The full moon came in sight as we rounded the cape. The sun sets at 8.20 and rises at 3.55.

Pinnacled edges are found on the hills similar to those of the Plover Bay region. Stratified rocks are exposed in the cliffs. Murres, Rodgers' fulmar, kittiwakes, and mormons are the common birds seen to-day. The air here at 9 P. M., 46°; water, 47½°.

SATURDAY, AUGUST 21

Went ashore early with Baker and Noyes, to collect birds, etc. The day was for the most part very pleasant, and in the afternoon the sun's rays were powerful, so much so, that two Eskimo boys stripped down to the waist. These people, like the Plover Bay folk, were hatless.

I think the Cape Lisburne Eskimo would have worried even Job into vigorous speech, as they certainly did me. Beg, beg, beg! without end—tobacco, shot, powder, caps, matches; they were never tired of importuning us for these staples, and when they shot they never hit a bird. They are bad shots, except at very short range—about the length of a gun barrel.

They wear *labrets*—one had a pair of stopples of Worcestershire Sauce bottles! They live in semi-subterranean huts; use *bidarras;* have for the most part the cheapest kind of muzzle-loading guns, though one had a Winchester repeating rifle; their spear points are partly bone and partly copper or other metal; their parkas are of reindeer skin with hoods. Their curiosity is unbounded and they torment whites as much as children would a good-natured kitten. It was necessary to have an eye on each pocket to protect its contents. One neighborly fellow wanted to see my cap, which he immediately clapped on to his dirty pate, much to my disgust.

Notwithstanding the extreme annoyance endured from these "untutored" minds, I made a good day's work, securing fifteen birds, a marmot, fossils, lichens, flint chips, etc. The birds seem to be blue gull, another gull, kittiwake, wagtail, dunlin, longspur and stone chat. The marmot is quite common. I saw a good many cormorants, a few eider, guillemots without end, and some mormons, also a raven which I shot at. We tried two seine hauls and took six species of fish—all small: salmon, sculpin, polar cod, blenny, sea poacher, and capelin. We saw no large fish.

At 7.45 P. M. we got under way for the northward. The fossils here seem to be carboniferous; there were many fossil corals. The long plateau fronting our anchorage is comparatively level, the soil rather springy, traversed by numerous rills, though easy to walk over.

This seems like sailing in a mill-pond, and the air at 9 P. M. was 50°. The moonlight is fine. Reindeer are found near this cape.

Sunday, August 22

After breakfast the anchor was let down, about ten miles to the eastward of Cape Lisburne, there being no wind.

Cormorants were rather common to-day. I heard a raven, too, away off on one of the hills. I collected two longspurs and some lichens, a couple of wooden implements and an imperfect skull of a young walrus.

I saw a burial frame on slightly elevated ground. There were four stumps, root ends up and the other ends imbedded in the ground, furnishing the necessary crotches for supporting the cross and lengthwise pieces. They were about two and a half feet long above ground.

On these stumps were two cross pieces, which supported two sticks ten feet long, and between these outer long sticks were eight other smaller round sticks which formed the immediate rest of the corpse. There were a foot board and a head board—each one inch thick, about two feet long, and four inches wide. The head board was supplemented by a head stick—part of a stump, about three feet long, and one foot in diameter at its widest part. At each end were seven or eight round sticks, from four to six feet long, placed obliquely in the ground and leaning inward toward the body at the top. On each side were eighteen or twenty round limbs of three to six inches diameter, placed obliquely and crossing one another at the top; these sticks were from 8 to 14 feet long. One additional stick on each side about the middle was oblique, but did not meet its fellow at the top.

The corpse rested on two deer skins placed hair side to hair side, and was apparently covered with a deer skin. It occupied a space of about three feet eight inches long by fourteen inches wide, and lay on its back with the feet drawn up and the knees in contact. The arms were straight along. The head was towards Cape Lisburne and the feet to the east; the head was slightly higher than the feet. This case was of course open to animals and birds, and the foxes, marmots and birds had left their traces. All the wood in the structure was driftwood.

A good-sized stream debouches here and a long tidal lagoon is near it. Eskimo camps have been pitched here. A very good sled was lying on the ground, the runners bone shod. There are many flowers and myriads of lichens. One of the men claimed to have seen a reindeer. Brant have just begun to migrate southward—we have

seen a great many pass to-day. It is warm enough on deck at 10.30 P. M. without an overcoat, and the twilight still lasts.

MONDAY, AUGUST 23

Woke up to find a strong nor'easter blowing and the "Yukon" lurching uncomfortably. The sea is short and choppy; the vessel down to double reefed fore and main, and laboring slowly along. Every loose thing on board has revealed itself by dropping with a clatter.

TUESDAY, AUGUST 24

During last night the wind shifted, and the sea soon became so smooth that one could work with comfort. The country is mainly low and flat in the vicinity of Point Lay and for many miles to the southward. Seal have been abundant; birds very scarce, only an occasional murre and one gull. The sea has been smooth as a mill-pond nearly all day and wind exceedingly light. It has been just comfortably warm, too, 49° at 8 P. M. and 48° at 10.30 P. M. The water is quite shoal here and generally in the Arctic, 32 fathoms being the deepest sounding on my chart—so that while an ugly sea rises quickly it also subsides quickly with a change of wind and does not make life miserable for days and days after a storm, as is the case in the deep sea.

WEDNESDAY, AUGUST 25

Anchored about breakfast time not far from Icy Cape. Very early this morning we passed the whaler "Dawn" of San Francisco. She had six whales. Captain Hickmot said he saw the "Corwin" about a week ago; he had fourteen whales. All are doing well. Whales have been very plenty all around us. The carcass which the "Dawn" had lately finished cutting in was near our anchorage.

Ashore I collected some shells and other invertebrates, skulls of polar bear and walrus, a stickleback, a golden plover, one dunlin, four phalaropes, a stone-chat, besides one black brant, which last was very abundant on the brackish lagoons of the spit.

Eskimo have been here recently; quantities of broken skulls of walrus and other animals lie around. Great pieces of whalebones are imbedded in the ground in many places. Lichens are abundant and some on the rocks are very pretty. We found a number of implements, principally of wood. Heaps of burned bones are frequent. The Eskimo burn the bones to appease the spirit dwelling in the animal, fearing a failure in future hunting if this mark of respect be withheld.

As far as the eye can see here, the country is low and flat. A great lagoon lies between the spit and the mainland, in many places so shoal that a whaleboat cannot go through at low tide. Drinking water is found by digging a few feet.

THURSDAY, AUGUST 26

We have seen the packed ice often to-day and lots of whales. We went aboard the whaling barque "Hunter" of New Bedford, Captain Fisher, and saw them cutting in a 100-barrel "bowhead." Secured some of the black skin, blubber and whiskers, which appendage is very little known in connection with whales and scarcely referred to in any of the books. The "Hunter" had eleven whales, and her boats were in chase of another before we left. Met the "Corwin" a little after 7 o'clock and soon afterward anchored near Point Belcher. Very soon two *bidarras* of natives were on board. Captain Herendeen traded for some reindeer meat. The men have most astonishing *labrets*, and do not seem to beg as the Cape Lisburne fellows did.

Wounded a jæger as we passed the "Hunter" but it fluttered away before we got it. The species was abundant around the ship and there were a few gulls.

FRIDAY, AUGUST 27

The natives here do not beg, and it is easy to trade with them. Some of the labrets worn seem to have been made of glass beads set in stone or bone—the largest I saw was perhaps one and one-fourth inches in diameter. The jæger and snowy owl are common. Longspur and stonechat are more plentiful than anywhere else so far as observed by me. Phalaropes are here in large flocks. Eider

are not plentiful. We had whale steak and reindeer for breakfast, and eider for dinner.

SATURDAY, AUGUST 28

Left Point Belcher about 9 A. M. for the southward, with a fair wind which has held all day. Yesterday the steam whaler "Mary and Helen" passed close to and hailed the "Yukon"—she had twenty-two whales. The "Alaska" was in sight to the northward and westward. Temperature of the air in the morning 40° F.

SUNDAY, AUGUST 29

The fine breeze continued fair, and carried us rapidly on our way past Cape Beaufort, Cape Lisburne, and on beyond Point Hope and Cape Thompson, which we passed before dark. Fulmars and murres are now more abundant. Air in the evening 46° F. and water warmer. Off Cape Lisburne we saw the "woollies" coming down in force. In the midnight twilight the high hills beyond Cape Thompson are clearly defined against the glowing sky, while the major part of the sky is overcast.

MONDAY, AUGUST 30

To-day we have been gradually running in toward Escholtz Bay, with rather too much light wind. Passed Cape Krusenstern about 5.30 P. M. We saw a couple of tents and a larger settlement a few miles farther to the east. We have had exceptionally fine weather and smooth sailing all the way from Pt. Belcher; quite a delightful experience has our Arctic navigation been as a whole.

The face of the country is generally made up of high hills with some intervening valleys and long stretches of very low land adjoining the sound in many places. Cape Krusenstern is a low point, hard to see even a few miles away. Air 46° at 11.30 P. M.

TUESDAY, AUGUST 31

About 6.30 A. M. we anchored near Chamisso Island, Escholtz Bay. Salmon berries, whortleberries, service

berries, and a kind which is not edible are all abundant. The island is covered with grass, alder, and willow, and there is a dwarf birch. There are some little rills of tolerably good water. The land rises gradually inland and from the ends of the island, so that a very regular curve is shown from our anchorage. There are many hummocks which greatly impede walking. There are some cliffs in a rather tumble-down condition, with occasional deep cuts between, and small stretches of sand-beach. On this island is a cairn and an astronomical station which has been visited by the "Blossom," the "Plover" and other vessels.

ESKIMO CHEWING SKINS

A *bidarra* of Eskimo came aboard after supper to trade. I gave some shot and caps for a mink skin and a few caps for a dried hoikoh salmon. Captain Herendeen got some dried smelt for me. In the seine to-day, the great sculpin was taken and another young sculpin was dredged.

Wednesday, September 1

Got under way about 9.30 A. M. and at 10.15 anchored on the east side of Choris Peninsula. Captain Herendeen saw geese, stone-chats, and a sandhill crane. It was too rainy when he was ashore to find small birds.

Thursday, September 2

Early in the morning Dall, Baker and I sailed in the longboat nearly to Elephant Point and walked the rest of the way. This point is distinguished as the locality where Kotzebue found remains of the fossil elephant, ox, and other mammals. It was afterward visited by some of the English exploring ships and furnished the materials for the volume relating to these animals in the "Voyage of the Herald."

The clay bluffs in which the bones are found extend about two miles east and west. They are backed by still

higher bluffs, and these again by a gradual slope upward to a height of about two hundred and fifty feet or more, after which comes a slight decline followed by a still higher slope. The bluffs are composed of ice, in some places fifty feet thick, loose light soil, and tough blue clay in various proportions. On the high grounds solid ice was found about a foot below the surface; little pools of very good ice water were numerous. Service berries, salmon berries, and blueberries were abundant. Frozen peat was found immediately covering the ice. Lichens are very abundant and there are some flowers. Numerous ravines are well wooded with alder, willow, birch, etc. Grouse were seen in the undergrowth. Traces of wolves and bear were frequent. We found trees as much as seven feet high and three inches in diameter growing freely where there was little more than a foot of soil covering the solid ice.

The smell of these ice cliffs resembles that of a stable or something worse. Mr. Dall boxed some of the richest of the odoriferous substances. We found a good many valuable bones. Beluga skulls were also found on the beach. I saw geese, eider, a fine raven, and many gulls. Shot two widgeons, a white-winged gull, a turnstone, and a very pretty hawk. Found plenty of small sticklebacks in the brackish lagoons near Elephant Point.

Friday, September 3

Early in the morning we left Choris Peninsula with a fair wind, and ran along as far as Cape Espenberg and a little beyond, when the wind fluctuated and died away. Air at 10.30 P. M. 41°. The coast in the vicinity of Cape Espenberg is low and apparently lumpy.

Saturday, September 4

Air at 8 P. M. 41½°. Some rain and disagreeable sea in the forenoon. Murres and Rodgers' fulmar abundant. The water is quite phosphorescent to-night, and as we plunge through it, impelled by a ten-knot breeze, wide swaths of pale glowing light are on either hand and behind us.

SUNDAY, SEPTEMBER 5

Early in the morning we were near East Cape, which we could not approach closely on account of the ice; neither was the bight near it accessible for the same reason. Although there was a strong breeze, the day was mostly clear and Mr. Dall was able to make a complete thermal section of Bering Strait from off East Cape to near Cape Prince of Wales. After this was done we put in for Port Clarence and anchored outside of the spit. The strong breeze and high sea made things pretty lively for us nearly all day. From Cape Prince of Wales along to Port Clarence the coast is marked by rounded hills alternating with plateaus, some of them of considerable length. From our sailing track the country looks rather barren and we experienced again the "woollies" so common off the high hills of this northern coast.

A "sun dog" was seen in the evening.

MONDAY, SEPTEMBER 6

This morning we ran beyond the spit which ends in Point Spencer and nearly into Grantley Harbor, but by 8 A. M. we were at anchor near the village on the spit. The spit is long, narrow and curved. Where I crossed it I should estimate the width at three-quarters of a mile. It is level, offers good walking, and is well watered by fresh lagoons around which birds collect. It has no trees except the very scrubby dwarf willows, but has a few flowers and many lichens, some of which are exquisitely pretty. The water of the lagoons is very good; there are many sticklebacks in it. The lagoons are all very shallow. What becomes of these fish in winter?

I shot four phalaropes, a dunlin, longspurs, a stone-chat, and a burgomaster gull. I saw also a wagtail and a small wren, which I could not get. Picked up some sponges and other invertebrates on the beach and a couple of walrus skulls; also a human cranium over on the west side of the spit. Found some small fresh water shells near one of the lagoons. Collected a fine lot of lichens.

The glaucous-winged gull was abundant, with kittiwakes; mormons were observed, and a few eider. Captain

Herendeen shot some oldwives and brought back from the village a dried "vachna," two trout skins, and some sticklebacks. Mr. Bailey made seven seine hauls and took sand launce, rock trout, sea poacher, sculpin, and two species of flounder. A native told us that fish were plentiful on the east side of the bay.

Tuesday, September 7

Owing to the strong breeze blowing all day no one went ashore; it was cold, too, the air being 41° in the evening.

Wednesday, September 8

The wind moderated and we had a fairly good day for collecting, excepting a little rain. Went ashore after breakfast to shoot birds, but found very few. Shot two longspurs; saw one wagtail but could not get close enough. Traded five pieces of tobacco for a white-fox and some ethnologica. In the afternoon traded caps, needles, and tobacco, for a lot of ethnologica, brought by King's Island Eskimo. These people are not at all troublesome and are easy to barter with. They showed a marked liking for tobacco and caps, and the women for needles.

I secured specimens of Dolly Varden trout, whitefish, smelt, and herring early in the morning and of "vachna" cod in the afternoon by trade. We obtained some very good stone implements and labrets, fishing lines, sinkers, hooks, ivory implements and ornaments, tools, etc. The fishing lines are very ingeniously arranged to lure fish. The natives are shrewd traders, quick to see an opportunity, and tenacious in holding on to it. They had oil in seal skin bags; sometimes they fill the bag partly with water and pour oil on top, to cheat the buyer. They care little for American clothing, jewelry, etc., but want things of real value for their own purposes.

One drilled a hole and a half in an unfinished sinker for me with a steel drill, using no bow and mouthpiece because he had traded them away. The bills of the razor-billed auk, being red and having appendages which when dry have the appearance of an imperfect salmon egg, are used on the fishing lines as a lure, and ivory or bone imitations of fish are similarly used.

THURSDAY, SEPTEMBER 9

The King's Island people came aboard again this morning and brought a few ethnologica. We got under way for the Diomedes, and before night we were abreast of Cape York. The coast in that vicinity is mainly low—flat bluffs backed by high hills. Some of the hills are clustered in curious parallel cones. The country looks quite barren. There is a little snow on the high peaks. Before we left Port Clarence an Eskimo brought aboard eight eider which he had speared.

FRIDAY, SEPTEMBER 10

Reached Big Diomede or Ratmanoff Island at 7 A. M. Several *bidarras* containing Eskimo come out to trade. Captain Herendeen bought a great lot of little auks and Mr. Baker brought off six young ones from the island.

There is no good landing; there are large and small bowlders on the shore just as at Little Koniushi Island. The granite cliffs rise steep and high, and the top is flat. There is a village on the north or northwest shore; the observing station was on the southeast. Several flowering plants were collected, a chickweed among them.

Captain Herendeen traded for some walrus tusks, blue, white, and cross foxes. We got three lance heads. The people are not troublesome; they are dirty and shabbily clad, and hungry for tobacco and "cow-cow" (food), but quiet and orderly enough. Their *bidarras* are very well made. Reindeer skins (white) they hold at a high figure. I offered one of tl em a pair of pantaloons or a coat for one, but he wanted a whole suit. They have few labrets and none of them good. They are of medium height, not so tall as the whites; light copper color or swarthy, very much like the Plover Bay people. They asked first for tobacco, next for "lum." Guns and ammunition are their choice.

SATURDAY, SEPTEMBER 11

During last night, floating ice delayed us a good deal. We passed Indian Point before lunch and at noon spoke the "Progress," of New Bedford. She had seventeen whales. At 10 P. M. we were near Plover Bay. A whaler is at anchor a little to the eastward of the bay, trying out. A long narrow shaft of gold ascended from the sun at sunset and the sky was lovely.

SUNDAY, SEPTEMBER 12

We anchored in Port Providence, Plover Bay, a short time before lunch. The wind was very light but the day was superlatively good. Not a cloud obscured the sun. Baker and Noyes went ashore at once and had a perfect working afternoon.

Captain Jerningham, of the barque "Tropic Bird," came aboard and took lunch with us. He has been in the Arctic twenty or more seasons and saw nothing to equal this before. He was within ten miles of Herald Island early in the season and others have since been within three miles, but nothing has been heard of the missing whalers or the "Jeannette." The impression among whalers is, that the missing men will never be heard from.

The water of the bay approaching Port Providence is fairly brown by reflection from "whalefood" beneath its surface, and the watermelon or cucumber smell is very strong. Collected two ravens, two Buffon's jægers, a golden plover, a longspur, three marmots, some lichens and ethnologica on the spit. Saw no wagtails, but heard one away up on the high hillside. Climbed up after it, but could not see it. I found, however, two piles of reindeer antlers, heaped up and partly covered with bowlders, and a fragment of a human skull.

The moon as it sank over the flat, narrow head of the spit to-night, was reflected with very little distortion in the almost perfectly still water of Port Providence; thousands of stars were reflected, also. The shadows of the high hills made a perfect image in the waters all round as far as one could see in Plover Bay and the lights of the whalers shone out bright and clear. Low voices could be heard from the vessels in conversation. A lovelier picture I have seldom seen.

MONDAY, SEPTEMBER 13

Went ashore early in the morning with Baker. Walked to the southern end of the spit and followed along the cliffs to the first pinnacle in search of birds. Saw a few ducks but could not get a shot. There was thin ice on the shallow lagoons of the spit, and a heavy frost. The sun rose clear over the hills, but was obscured in a few minutes and remained so all day. It was pretty cold unless one kept constantly in motion.

There are hardly any land birds except ravens. I saw one wagtail flying toward the point of the spit. Shot a cormorant, which fell some distance out on the water—too far to get it. I killed one golden plover and a marmot; picked up a lot of skulls of dogs, a couple of jaws of walrus teeth, and some old ethnologica. Among the ethnologica added to the collection to-day were two bailing or drinking cups made of horn of the mountain sheep.

TUESDAY, SEPTEMBER 14

About lunch time I went ashore on the point hoping to find snipe or some other desiderata. There were none to be seen. I walked down to the head of the spit where the gulls congregate. The gulls left when they saw me, but the ravens held their ground and did not seem to fear me as long as I sat still and made no sudden movement. They would fly quite close to my head, and look at me with apparent curiosity, uttering now and then a hoarse cry or call to some other raven flying near at hand, hopping forward a step or two, then pulling off a piece of moss from the stones and jumping slightly into the air, sometimes taking a good-sized stone in the beak, perhaps to see if any food might be concealed under it. Occasionally one would find a morsel and another would try to take it out of his bill, the lucky one seeming to hold it out temptingly, but firmly, to tantalize his covetous neighbor. In starting to fly they would strike the ground with their feet two or three times to gain an impetus.

Leaving the ravens to their antics, I walked up the hillside to an old burial place where I found a broken skull of a fox and a pretty good Eskimo cranium. Here I saw the

moss-lined rock cairns in which human bodies were once partially cremated. Few bones were to be seen and the place had evidently not been used lately.

After dinner, Dall, Baker, Noyes and I went to see the steam whaler, "Mary and Helen." Captain Owens was full of information about whales and it did one good to hear him talk. He repeated an amusing expression of Captain Jerningham: "Prepared to die, but not quite ready." The captain says that when a whale is struck all the whales for miles round will know it, and put out. One of Owens's men, named Green, killed seventeen of the whales taken on this voyage; he is one of the best whalemen in the business. "The Lolita" went ashore on St. Lawrence Island A party of the crew came over in a whaleboat. As soon as the Indian Point men heard of it they started for the wreck. The remainder of the "Lolita" crew are still on St. Lawrence Island. Captain Owens and Mr. Reynolds wore kid jackets which they bought in the straits of Magellan from a German—and capital things they are for wind and cold.

The largest oil casks we saw hold fourteen barrels. Captain Owens told us he had seen a polar bear killing large walrus by biting through their skulls, swimming carefully under cover of ice cakes, keeping to leeward of the walrus until close enough for a spring, stopping occasionally to raise himself carefully and peep, to see whether the game continued unsuspecting.

Wednesday, September 15

Mr. Baker and Captain Herendeen walked through the divide to Moore Lake, and found the greatest elevation reached 800 feet. The hills on either side of the divide, they estimate at near 2000 feet. They saw no birds, nor any living thing except ravens. They brought back a few old ethnologica picked up in a deserted village at the lake, a few lichens, and a spider.

Thursday, September 16

Captain Owens called shortly before lunch and spent part of the afternoon. He brought some of his journals

of whaling voyages and told us of many adventures and sights. He has twice seen a whale suckle its young. Once a whale which yielded 40 barrels of oil was seen in the act of sucking; the mother was turned on her side and back, and the young one was athwartships. At this time, the mother, the male and the young, were all caught, and the three made two hundred and fifty barrels of oil.

Captain Owens also told how he once had a lance struck through a polar bear; the line fouled and the headway of his boat was such that the bear was suddenly jerked alongside and quite close to the captain. The bear immediately struck at the boat and carried away the ribbon. The captain fired a big cartridge at him, but missed several times. They finally managed to get the line clear, and then easily kept out of the way of the bear, which soon weakened from its wound and was at last killed by a ball.

The captain told us, too, of an encounter with a fighting sperm whale which came for the boat with his jaws open and thrashing from side to side. An iron was driven into his case when he immediately closed his mouth and then shoved the boat a long way ahead of him. Another iron was driven into his mouth which caused him to turn on his side, and a third iron was put into his life.

Captain Fisher told us when we were aboard the "Hunter" of a polar bear in Hudson Bay which came for his boat and was stopped at the bow by a lance driven into his vitals. Said Captain Fisher: "The head of a whaleboat is a hard thing to face."

Captain Gilley, of the "Julia A. Long," said that walrus are plentiful on the beach of Hall Island. You can shoot the walrus on the beach while the bears are up on the cliff watching for a chance to kill walrus; you turn round and shoot the bear and he rolls down the cliff.

Captain Owens says that walrus are as much as six feet long before the tusks come through much. He has seen female walrus clasp their young in their flippers, to protect them from bears.

Friday, September 17

Early in the morning the steamer "Mary and Helen" took us in tow and carried us well out of the bay, after

which she stood across for St. Lawrence Island, to rescue the shipwrecked men of the "Lolita." When the "Mary and Helen" left us, the schooner "Julia A. Long" was standing out of Marcus Bay, bound also for the wreck.

THE UNFORTUNATE MIRANDA

HENRY COLLINS WALSH.

Henry Collins Walsh was born of American parents in Florence, Italy, Nov., 1863. Has been an extensive traveler in various parts of the world. He accompanied Dr. F. A. Cook's Arctic Expedition of 1894 as historian, and embodied his experiences in a book. Journalist, editor and war correspondent.

HENRY COLLINS WALSH

THE UNFORTUNATE MIRANDA

By HENRY COLLINS WALSH

R. F. A. Cook's Arctic Expedition of 1894 had no serious design upon the North Pole itself, its main objects being to study the Greenland glacier system; to map out and explore a part of the unknown coast of Melville Bay, and to photograph, sketch and study the Eskimo, as well as the animal and vegetable life to be found in the northern regions. But, as shall be herein recorded, a perverse fate interfered sadly with its more serious objects; and as the majority of the members of this numerically powerful expedition had joined it rather for the sake of sport and the gaining of a novel experience, than from any desire of assiduously devoting themselves to Arctic work, it may not inaptly be termed an Arctic excursion.

The members of the expedition were detained for some days in New York because the ship in which they were to sail was belated, and arrived in port behind the scheduled time.

The Miranda was the name of this vessel, a name suggestive of hidden reefs and tempests. She was a vessel with a past, and that past was not entirely to her credit. She was built for the Red Cross Line in 1884, and had hardly been put into service between New York, Halifax and St. John's, when she ran on the rocks off Point Judith. Later, she struck on rocks in Hell Gate and sank, but was raised at considerable cost. She soon afterwards collided with an iron steamer, and later with a schooner, and it was she who towed the famous Leary's raft from Nova Scotia in 1887. The raft pulled the fastenings out of the Miranda, went to pieces, and became a serious disturber of traffic. The ship lost something of her good name and all her passenger trade after these trifling accidents, and was finally rented out as a freight steamer. She seemed indeed to take more kindly to freight than to passengers, for she behaved herself fairly well until she took us all on board; she had been merely restraining her passion for collisions, and holding in abeyance her singular penchant for rocks, until a fitting opportunity presented itself for a full display of her powers.

The expedition finally started from Pier 6, North River, on the afternoon of July 7. Quite a large concourse of people had collected on the pier to see the Arctic argonauts start on their fateful voyage, and we all tried to look like the Arctic heroes we had read about, and cast glances as cold and as haughty as possible upon the spectators.

Many enthusiastic friends had crowded upon the ship, and when the jangling signal had been given for all who were not going to brave the dangers of the north to go on shore, the pause that came before the actual start gave an opportunity to a stout man on the wharf to let off a few mild jokes at our expense. He persisted in looking upon the expedition from a humorous standpoint, and was aided and abetted in his point of view by a Fourth of July jag which had not yet entirely deserted him.

"What in the name of Hades do you want to go to the North Pole for anyway, when ice is only two dollars a ton in New York?" he shouted.

Little did he know how dearly ice would cost us later, off the coast of Labrador. When the start was actually made, and the Miranda, instead of backing out as was intended, headed directly for the dock, hitting against two or three small craft on her way, this man's delight knew no bounds.

"Are you going to hunt polar bears in Wall Street?" he queried in high glee. Something unlooked for had happened. The signal wires running into the engineer's room, which had just been renewed, had been unaccountably crossed, and the engineer had received the reverse signal from the one intended.

It looked for a mniute as if the small craft were doomed to destruction by being jammed against the dock, but after considerable bellowing and shouting and not a little swearing, matters were rectified, and the Miranda backed out, and started on her career, amid cheers, wavings and confused shoutings of farewell from the shore.

We had not long been out when I had a protracted conversation with the captain of the ship. Conversations with the captain were generally protracted because he stuttered terribly. He informed me after several attempts that we would have no luck upon this voyage.

I asked him to explain his gloomy foreboding.

"Ss-ss-ss-sky pilots," he remarked, indicating with a gesture two reverend gentlemen who accompanied the expedition. I knew of this superstition among sailors and did not endeavor to combat it. Argument amounts to nothing when opposed to superstition.

It took a little time for the members of the expedition to get acquainted with each other, for there were fifty-two members all told, and they represented a large variety of professions and characters. There were doctors of divinity and doctors of medicine, college professors and students—Harvard, Yale and Oberlin Colleges being particularly well represented—business men, sportsmen and explorers, an artist, photographer, and a couple of "d—d literary fellows."

"How well this crowd seems to get along," remarked a man opposite me at the breakfast table, "in spite of the fact that before leaving New York scarcely one man in the crowd knew another."

"Well," said an Englishman upon my right, with the slow deliberation of his race and the air of a man who had given the subject careful consideration, "well, but we are a very superior crowd, you know."

There was no dissent from this opinion.

Late in the afternoon of July 11, we steamed into the beautiful harbor of Sydney, Cape Breton Island, one of the finest in the world. Here we remained long enough to take in the town and its surroundings, as well as a supply of coal and provisions. The inhabitants of Sydney appeared to have no faith in an iron ship as an Arctic navigator. They declared it would be smashed by the ice. One ancient oracle, a prophet of wind and ice, was appealed to for his opinion. He shook his head, gave a significant look, and said solemnly that he did not like to express his opinion in our presence. Had he doomed us to certain death, he could not have thrown a deeper gloom over the assembled company

At St. John's, Newfoundland, our next stopping place, we once more gave occasion for dire prophetic utterances. It was therefore a considerable relief when Dr. Cook returned from a pilgrimage to the shore, bringing with him a veteran ice pilot who had been with Peary, and who was regarded as an authority upon Arctic navigation. His services were secured for the trip, and he proved to be a sort of Bunsby who so won the confidence of Captain Cuttle. His oracular manner and the significant nods that accompanied his Delphic utterances seemed to cheer the drooping spirits of those who had harkened to too many forebodings, and so in high feather and with large hopes, we steamed out of the harbor into the open sea.

On the following day we encountered a seemingly unending procession of icebergs, of all sizes and shapes; some of them assumed most exquisite contours, and I shall never forget the striking beauty of one large mass of ice that slowly passed us. In shape it resembled the ruins of a vast cathedral, from which a stately tower rose and glittered and gleamed in the sun. It seemed as if some great Arctic Michael Angelo must have spent his life in giving shape and beauty to so grand a pile. An iceberg at a convenient distance is a magnificent sight that adds a real charm to the vast expanse of sea; but distance lends enchantment to the view, as we shortly discovered.

The next day it was foggy, very foggy, and the white curtain that fell about the ship seemed to be growing heavier and heavier. Just after breakfast, a number of us were on deck, when suddenly the signal to reverse the engine was given, and simultaneously through the dense fog an immese mass of ice loomed directly ahead of us and in a moment we had struck it full and square.

The iron prow of the ship ran right into the berg for fully seven feet, and the ice crumbling and breaking from the shock fell in a great mass upon the forward deck. The reverse action of the propeller then began to draw us away from the ice, and the Miranda backed and careened to one side. There was an uncomfortable moment of suspense, and then the vessel righted itself.

It was quickly ascertained that, notwithstanding the severity of the shock, the damage that had been done was not sufficiently serious to endanger the ship. We had fortunately struck a projecting portion of the berg above our water-line, so that the blow came upon the upper starboard bow-plates; three of these were stove in, the hole running upward about fifteen feet above the water line. It was a great piece of luck that we did not strike the great mass of ice below the water, which forms the greater part of an iceberg. It was the projecting ice above that saved us from tearing out the bottom of the ship by striking the vast mass below; had we hit upon this, my readers would have been spared this narrative.

We were off the coast of Labrador, and it was decided to

put in to the harbor of Cape Charles for repairs, and then continue the journey northward.

Slowly we steamed into the not very inviting harbor of Cape Charles on that bleak coast. High, barren hills rose all around us, destitute of vegetation, except that here and there kindly mosses covered their nakedness.

It did not take us long to form the acquaintance of the entire population of Cape Charles, because this population consists of only a half dozen families, augmented somewhat in the fishing season by a few fishermen from Newfoundland. Very simple, very monotonous and very dull is the life of a Labrador fisherman; he fishes, he sleeps and he eats, and that tells about the whole story.

We were a sort of godsend to the inhabitants, for they had never seen so large a ship before, and we were as popular as a circus in a rural community. The men brought their wives and children to have a look at the wonders of the boat, and to see the live sheep on board, natural curiosities which had never before been seen in that place, and which were much admired.

One old fellow was very much struck with the water cooler; he regarded it as the most remarkable piece of mechanism that he had ever seen, and never tired of standing by it, in open-mouthed admiration, to witness the extraordinary spectacle of water being drawn from it. The favorite Labrador drink is made from a mixture of spruce beer and rum. Spruce beer is a very popular drink in Labrador, and every well regulated family keeps a supply on hand; rum is also popular, but rarer.

After spending a few days at Cape Charles it was ascertained that the proper repairs could not be made there, and as it was deemed unsafe to proceed northward in the crippled condition of the ship, it was decided to return to St. John's in order that the vessel might be properly tinkered. Our second arrival at that city by the sea created no little excitement, especially after the news of the collision with an iceberg had circulated through the town; and the prophets joyfully gathered about us, and reminded us of their warnings. The realization of a dire prophecy is the greatest happiness that can come to the heart of a prophet.

The Miranda lay at the great dry dock at St. John's, and night and day the hammers played merrily upon her. In about a week she was ready to start northward again. But it was a question as to whether we could proceed with any degree of safety, and we were obliged, much to our disappointment, to give up all thoughts of entering Melville Bay, both on account of the delay we had experienced, and the danger of getting nipped by pack-ice, for all the authorities agreed that in such a contingency the Miranda would be crushed like an egg-shell. After considerable deliberation and consultation it was decided that it would be safe for us to proceed to the southern coast of Greenland. Notwithstanding the opinion of authorities, however, the people in general looked upon us as little less than crazy for attempting to go on at all, after our unfortunate experience. A small party of excursionists were skirting about the suburbs of St. John's one morning, when they came across the lunatic asylum, and thought they would like to inspect it. They rang the bell, and the door was opened by an attendant, who said that visitors were not admitted upon that day.

"We come from the Miranda," said one of the party, starting to explain.

The door was then opened wide.

"Walk right in," responded the attendant, "and make yourselves at home."

On July 28 the long suffering Miranda received her final hammering and a start was made for South Greenland. For three days and nights we bowled along, and then a fog thick and dense fell around us. For days we drifted about without anybody knowing exactly where we were, for no accurate observations could be taken. Sometimes the fog would lift, to reveal that we were surrounded by floe ice and icebergs. We coasted along this ice in fog and rain attempting to find a passage through it. The long stretches of ice, the huge icebergs towering like mountains above, and the roaring of the waves dashing against the ice-floe, combined to make a scene both impressive and awful.

We caught our first sight of the Greenland coast on the morning of August 3. The lofty peaks of Mount

Nautsarsorfike and Mount Kunguat could be discerned, and were perhaps seventy miles distant. There was much floe ice between us and the land, and also to the westward, the ice seeming to form a continuous line along the horizon. Then the fog closed all about us again, and the ship was obliged to lie to with the ice all around it. To the westward there was a continuous roar as of waves beating upon a rocky shore, but it was the roar of the ice-pack.

Finally the fog lifted and disclosed an alarming state of affairs, for the floe was closing in upon the ship. West of us was a line of pack ice like a wall, only about half a mile away, while to the east was another ice wall. The Miranda fled in a southeasterly direction, and beat a most interesting retreat through shapes and forms of ice of all varieties and colors. Slowly the ship picked its way through the ice-belt and at last we left the dangerous pack behind. Then the fog fell again, and for days we drifted about, making little progress.

On the morning of August 7 we again sighted land, and the ship was headed for the shore, blowing its whistle to attract attention should there prove to be a settlement along the coast. For an hour or so we lay to, blowing fierce blasts from the whistle and firing the ship's cannon. After a time two little specks were made out and before long shaped themselves into Eskimo *kayaks*. Soon a large boat hove in sight and made directly for the ship. It contained several Eskimo who came on board and piloted our vessel into a snug little harbor surrounded by islands. Here was the Eskimo settlement of Sukkertoppen (Sugar Loaf), presided over by a Danish governor. On a hill we saw a staff flying the Danish flag, and collected about it a crowd of Eskimo, men and women, who were apparently in a great state of excitement, and looking down at us with every evidence of curiosity and interest. As soon as the ship dropped anchor, boats were lowered and we were soon on shore. Here the entire population, about four hundred souls, had gathered just in front of the governor's house, and received us with every expression of simple-minded wonder and delight.

After paying our respects to Governor Bistrup and his

family, we scattered over the settlement and had great sport with the natives, who followed us about with the keenest interest, and were particularly desirous of securing tobacco. It was not long before the commercial spirit displayed itself on both sides, and many of our party went back to the ship to gather material for trading which they had brought with them. They returned bearing bags of every description filled with knicknacks and old clothes. The place looked as if it were being overrun with Hebrew pedlars, and the scene was comical in the extreme. Some stood upon rocks, surrounded by an excited crowd of Eskimo, and peddled their goods to the highest bidder, the Eskimo giving in exchange fur garments, *kamics*, and

THE MIRANDA RAMMING THE ICEBERG

all sorts of apparel of Eskimo manufacture, besides dolls dressed in Eskimo furs and little model *kayaks*. Others of our party made a regular house to house, *igloo* to *igloo*, canvass, and had great times dickering with the residents

thereof; for bargaining had to be carried on by signs not always rightly interpreted. Such a babel of tongues as arose, such shouts of laughter, had probably never before been heard in Sukkertoppen.

Ribbons appeared to make the most popular appeal to the Eskimo women, and they went like hot cakes. A man with a sufficient supply of ribbons could soon have owned the town. All the women wore ribbons in their hair, which was tied up in a top-knot. These ribbons were worn not only for ornament, but also to designate the lady's condition. Maids wore red, married women blue, widows black, and those who were neither maid, wife nor widow, green. Some of the widows wore black and red ribbons interlaced, a sort of quick or the dead colors, which indicated a willingness to marry again.

It chanced that a young theological student had brought with him a great roll of green ribbon, and when he saw how popular ribbons were, he produced his roll and unwound it before a lot of maidens and their mothers. The hilarity that he occasioned embarrassed him, and when he attempted to hand his ribbons for examination to any of the girls the manner in which they ran laughing from him filled him with astonishment and embarrassed him all the more. When an ethnologist of the expedition, learned in Eskimo lore, explained to him the significance of the wearing of the green, he immediately retired in confusion to the Miranda, where he could blush unseen.

Of all the members of the expedition none gave the natives such amusement as did our English representative. Clad in a yellow oil-skin suit, and with his eye-glass in his ocular, he solemnly paraded about the settlement ogling the girls with a stony British stare. His absolute lack of any sense of humor, or of the incongruity of his make up, rendered his appearance all the more comical.

He was with a party of us who visited a glacier up one of the fiords, about thirty miles away. When we arrived at the foot of the glacier, we were quite worn with our exertions. There was a bright sun and the day was warm for Greenland. When we disembarked, the Englishman declared he must have a bath, and disrobing, jumped into the shallow water. Its icy coldness caused him to

jump out again with a howl. Then a dense throng of mosquitoes and black flies settled upon him, for these are wonderfully numerous along the banks of Greenland's fiords, and rise in perfect swarms. When this happened, there arose still louder howls as our English friend made a grab for his garments, and for a time rushed in agony along the strip of rock beach, wildly flapping at his tormentors with his undergarments. He was the entomologist of the party, and probably at no time in his life had he collected so large a number of specimens about him.

In climbing a glacier, "peaks on peaks" arise, and none of us was able to reach the top, for our time was too limited; but at an altitude of about twenty-five hundred feet we enjoyed a magnificent view of numerous islands and fiords that lay below, of the mainland of Greenland, and of the great ocean beyond. Twice we crossed spurs of the glacier. Our feet sank deep in the soft and melting snow, for the sun was so hot that we stripped ourselves of coats as we ascended. The moss that covered the rocks was green and beautiful, and scattered about this moss in rich profusion were great numbers of wild flowers, gorgeous in their hues. That evening we started back for the ship and after a hard pull reached the Miranda in the early morning. A few hours later the vessel started again northward. Thoroughly tired I was sleeping heavily in a top bunk, while below me was my English friend, also overcome by his exertions. I was awakened by the noise of the moving ship, and from out my port-hole could see quite a fleet of *kayaks* racing along, and keeping pace with the steamer. A high sea was running and the little boats would sometimes be hidden from sight in the trough, then rise in an instant on the crest of a wave, down which they would shoot again like a toboggan. Gradually the *kayaks* were distanced one by one, and still feeling stiff, I lay down in my bunk again and dropped to sleep.

I was awakened a second time, by a tremendous crash; it seemed as if the whole ship was being torn to pieces, and to a terrible ripping sound was added the din of breaking glass and china. We had struck with fearful force upon some sunken reefs, and men, furniture, and everything loose about the ship were thrown about in the wildest

confusion. I was pitched in a heap upon the floor of the cabin, and, as I arose, my English friend who was in the act of dressing himself drawled out "Oh, I beg your pardon, Walsh, I've got your breeches on, you know!" I could not help laughing though I thought my last hour had come. I donned whatever came to hand and hastily we climbed on deck. The ship jarred and grated and bumped, but finally aided by the high sea got clear of the reefs. Whether it was about to sink or not nobody knew.

On deck there was a scene of wild confusion. Many were rushing about with life preservers, some were working at the boats to get them lowered, and others were bringing their most valuable possessions up from their cabins. Our German photographer appeared with his hands full of pipes and bags of tobacco, and called out: "Save your tobacco, boys, the ship's sinking." In the excitement of the moment all sorts of odd things were seized. I saw one man in a night shirt with a gun in one hand and a life preserver in the other; another had the ship's cat pressed against his bosom. A member with very white gills rushed up to a distinguished professor, "Are we going down, Professor," he asked, "Are we going down?"

"Well, if you do go down," philosophically remarked the professor, "you will go down in exceedingly good company."

Our whistles were kept blowing continually, and the solitary cannon was fired off at rapid intervals as we turned back and made for Sukkertoppen. It was discovered that the aft ballast tank was full of water, but as our pumps appeared able to keep the leakage from gaining on us rapidly, there was apparently no immediate danger. Eskimo pilots reached us and by eleven o'clock we were safely anchored in the harbor of Sukkertoppen, and the Miranda was tied with cables to ring-bolts in the rocks. Here a careful examination as to the damage was made, and though this could not be fully ascertained, it was discovered that whatever hole the rocks had made was just beneath the ballast-tank. This tank extended the whole width of the ship, and lay beneath the engine room and stoke-hole. It had filled with water and the pumps could

make no impression upon it. It was fortunate that the force of the blows had been sustained by this portion of the ship, for had the rocks gored anywhere else the vessel would have gone to the bottom at once. The top of the ballast-tank acted as a false bottom and kept us afloat, but this was thin and coated with rust, liable to burst at any minute if subjected to a rough sea. Hence the captain decided that it would be unsafe to venture forth in the Miranda, and the problem of how we were to get home stared us in the face.

We were stranded in Greenland with provisions already running low, and the settlement could not afford us any, as it had a bare sufficiency for itself. There was no chance of getting away before the following Spring, unless we could secure a vessel. We learned from the Eskimo that there were two or three American fishing schooners at the fishing banks off Holsteinberg, about a hundred and fifty miles away. This offered a chance of getting back to civilization, and under the command of Dr. Cook a relief party started for Holsteinborg in an open sailboat which Governor Bistrup placed at the disposal of the party. A Dane and five picked Eskimo were taken along to act as pilots and couriers. On the same day two other parties started away from the ship, one to explore the Similik glacier, and one to hunt and fish up the Isortok fiord, and thus to attempt an addition to the slender store of provisions. Of the latter party I was a member. We took along with us Clark, one of the waiters, and five Eskimo as guides and to assist in propelling the boats, of which we had two, well loaded with tents, provisions, guns, etc.

As we were proceeding on our way, we met a large boatful of Eskimo men and women, returning from a fishing trip. We stopped and exchanged greetings, also a couple of plugs of tobacco and a mouth organ for some very fine salmon. The Eskimo went on their way rejoicing, sending forth a concourse of sweet sounds from the mouth organ. They probably thought us a very simple sort of folk to part with so rare and wonderful an instrument for just a mess of fish. In the evening we reached an island near the mouth of Isortok fiord, and here we pitched our tents to rest and sleep.

The next day it was raining very hard and the Eskimo told us by means of signs that we could not proceed. They are positive weather prophets and they understand their own climate pretty well. They would listen to no arguments, but dove into a little cavern wherein they had made their quarters, the mouth of which they had covered with a sail. It was evidently a favorite resort for Eskimo outing parties, for it was full of fish bones and refuse of all kinds, and had a most abominable odor; this seemed to make our natives feel at home. The Eskimo must delight in odors, he carries such powerful ones about with him. We were forced to the windward of our guides, otherwise they would have been intolerable.

It rained and rained and rained. The night that followed was the worst I ever spent. Our tent had been injudiciously pitched on a side hill, and a small waterfall percolated through the mossy floor, which now resembled a wet sponge. We could make no fire because there was nothing to burn, and the night was very cold. We had a little oil stove which we kept going until it burned out, but this did not help matters much. The tent's roof was so wet that great drops continually fell upon our upturned faces, as we lay huddled together in the middle of the camp, and I could push my boot down in the wet moss and hear the water gurgle. There was not much sleep that night for anybody. We fell to talking about comfortable waterproof beds in order to divert our minds.

"Did you ever sleep in two empty flour barrels?" remarked Clark, whose experiences appeared to have been varied.

"No," replied a voice, "I'll admit that I have been intoxicated, but I have never been that bad." Nevertheless Clark went on to describe how good and dry a couch could be made of two empty barrels, and the idea of any kind of dry couch was comforting.

For three days we were cooped up by this storm, and then the glad sunlight broke and wooed us back to rejoice in life again. We pulled about thirty miles up the fiord before we went into camp upon a mossy plateau on the banks of a narrow stream. All around us great mountains rose, and near by a huge glacier coursed downward to the

sea. For several mornings we got up at five o'clock, and each taking an Eskimo guide went his way to hunt the reindeer which are said to inhabit these regions. But not a deer was sighted. Though we got no deer, we caught

ESKIMO AT PLAY

quantities of salmon and salmon trout in the stream that ran by our camp, which was simply teeming with fish. But I must refrain from mention of the large numbers of fish we captured; people in our own well-fished regions would never believe the exploits that I could tell; suffice it to say that when we started back for the Miranda we carried to our comrades two hundred pounds of salmon.

When we reached the ship we found that the glacier party had returned, but Dr. Cook and his party had not yet been heard from. The glacier explorers had been caught in the same storm that overtook us, and had much the same experience, being confined to their camp by the fury of the elements. When the storm abated, they had explored and measured several glaciers in the vicinity of the camp, which was pitched close by a little Eskimo settlement. In front of the camp ran a brook, in which the explorers performed their ablutions. The Eskimo would gather to watch them go through these strange performances. The process of brushing the teeth filled them with unbounded wonder, and when one of the party removed

a set of artificial teeth and washed it, there was a terrified stampede, and he became an object of superstitious awe and veneration. Surely a man who could remove his teeth could remove mountains.

On the morning following our return to the ship, a great cheer arose which brought all hands on deck. A small schooner was seen making for our harbor, and surrounded by great numbers of *kayaks*. It was not long before Dr. Cook and his party came rowing over to the Miranda, and they were received with great enthusiasm, as can well be imagined. The schooner they had secured was the Rigel, commanded by Captain George W. Dixon, of Gloucester, Massachusetts. The staunch little vessel had been found fishing for halibut off the coast of Holsteinborg, and had abandoned the fishing grounds to come over and rescue us from the cold hospitality of Greenland.

As soon as agreements had been drawn up between the captains of the Miranda and the Rigel, preparations were made for the reception of the steamer's passengers on board the schooner. Four bunks in the after cabin were reserved for the elderly members of the Miranda expedition, and a place in the after hold, used mainly as a store room for fish and salt was selected as a bunking place for the rest of us. A space was cleared about twenty feet long, fifteen feet wide, and four feet high; and through a door which communicated with the cabin we crawled to our pen; not very commodious or sweet-smelling quarters, but it was the best that could be done.

It was cold, misty and drizzling the next morning when we made a start for home. Canvas had been spread over the salt and fish in the after hold, and over this we put our berth mattresses side by side. We fitted in as tightly as sardines. On account of the limited space we could bring only a few necessaries into the little vessel, which was but ninety-seven feet long, and of one hundred and seven tons burden. To ensure against separation in case of fog or in the darkness, it was decided that the steamer should tow the schooner, so the two were connected with a cable line, and a system of signals was arranged in order that the vessels could communicate in case of need or accident. It was hoped that the Miranda could make the run to St.

John's in safety, or, at any rate, that she could be run in somewhere on the Labrador coast. As we got under way the American flag was hoisted on our main mast and was greeted with loud cheers. The Miranda being an English ship, sailing under an English charter, flew of course the British colors. We removed our hats and sang the "Star Spangled Banner" and "My Country 'tis of Thee." It was an inspiring scene.

Near us, in a large boat, rowed by Eskimo, was the good Governor Bistrup and his family, to whom we were indebted for many courtesies. We gave them cheer upon cheer, which they and their Eskimo rowers returned. All about us the little *kayaks* darted until the rowers waved us a last good-bye. On shore a solid phalanx of Eskimo was drawn up firing salute upon salute. Slowly the Miranda turned out of the harbor into the open sea; the mists fell about us and the shores of Greenland were hidden from our sight.

The rain came down steadily with a dreary patter, patter on the deck, and continued to fall for four never-to-be-forgotten days. There was no shelter to seek on deck of any kind; it was cold, wet and disagreeable, while below the air was so foul and close that it made most of us seasick, so that we alternated between the devil and the deep sea with a vengeance. To add to the miseries of the situation the hatchway which supplied light and air to the after hold had to be shut down on account of the rough weather, for the waves were washing over the decks. At night the combined and generous odor of fish and bilge water, the extremely close quarters, and the groans, to say nothing of other noises of the seasick ones, made us feel as if we had descended into a veritable inferno. But "adaptation to environment," says Spencer, "is the law of life," and in accordance with this kindly law, we gradually grew accustomed to our surroundings, and our sense of smell became dulled, even to bilge water.

On our second day out, we encountered many swells, and fears began to be entertained for the Miranda. When night fell, a red light gleamed from the steamer's deck, indicating that trouble was anticipated. At midnight three shrieks came from the steamer's whistle in rapid succes-

sion. This was the signal that she was in distress. The Miranda slackened her speed, and as the two vessels drew close together, Captain Farrell, of the Miranda, warned Captain Dixon to be in readiness, for the steamer was in a sinking condition; the rusty top of the ballast tank had gone to pieces. From the deck of the Rigel we could dimly see the preparations going on aboard the Miranda in case she should suddenly founder. Our captain had urged Captain Farrel to drop into the boats with his crew, and abandon the ship. This meant to himself the loss of salvage, but the only thought of this big-hearted captain was for the safety of his fellow-men upon the doomed ship.

As the grey dawn began to streak the sky, the first boat-load of the Miranda's crew came rowing over to the Rigel, whose little dories were also put into the rescue service. When the last boat load had reached the schooner, the Miranda was abandoned to her fate. Her lights were still burning, her rudder had been lashed to one side, and so with steam on she vanished in the mist and fog, and was lost to sight forever. With the ship the members of the expedition lost all their belongings, except the very few necessities they had brought with them on the schooner. These losses embraced valuable ethnological and botanical collections, a great number of guns and scientific instruments, and various collections of photographs of Arctic scenes and people, and quantities of stuffed Arctic birds, seals, skins, etc. However, the saving of our own skins was a matter for rejoicing, and the losses were cheerfully accepted by all hands.

With the Miranda's crew, there were now ninety-three souls on board the little schooner, which was but ninety-seven feet long. Fogs, head winds, high seas, and icebergs combined to render the journey dangerous and slow, as well as uncertain. Provisions ran low, so we shot gulls, and reveled in seagull stews. When feasible, we added to our store by running in at two or three settlements along the Labrador coast.

On the night of September 2, we encountered a severe gale, and for several hours we were obliged to lay to under a triple reefed foresail and forestay sail. The hatchways were closed tight, and to add to our discomfort, the stove

ABANDONING THE MIRANDA

in the cabin just in front of our sleeping pen began to pour out volumes of smoke that almost choked us. One wise individual suggested that salt be thrown on the fire to put it out. The suggestion was acted upon and several shovelfuls of salt were thrust into the stove with such excellent effect that we were nearly suffocated by chlorine gas and the dense volume of smoke that now issued forth and settled all over us. Every one gasped for breath and hurled invectives at the head of the unfortunate man who had suggested this method of putting out a fire. Had he been turned, like Lot's wife, into a pillar of salt, I think we should have all rejoiced; it would have been a punishment to fit the crime.

However, the nuisance gradually abated, and although the odor abided with us all night and fought with fish and bilge water for supremacy, yet being now hardened, we were enabled to snatch some sleep despite the gale and the closeness of the quarters. A small party near me, huddled together in sitting postures, kept me wide awake for a while by an earnest discussion of the effect of salt upon fire, as if it had not been sufficiently demonstrated. One man in particular advanced his arguments in an almost continuous stream. His extraordinary volubility had a certain fascination about it, and I could not choose but hear. At length in a dreamy state, I gave myself up to the purely sensuous enjoyment of watching his jaws wag, and so fell asleep.

We were now nearing Sydney, Cape Breton, and we began to pass fishing schooners whose occupants eyed our swarming vessel with amazement. We must have resembled a pirate crew with numberless captives. At length, after a memorable voyage of fifteen days, we entered once more the fine harbor of Sydney. It was a wild, unshaved, unkept party of men that rushed upon Sydney's shore that day, but a most hilarious and joyous one. A dinner at the Sydney Hotel was arranged for all hands in the evening, and it was a motley and hungry gang that marched through Sydney to a haven of rest and plenty. Many of the party were decked out in yellow oil-skins which had seen much service, so that from a distance they looked not unlike a flock of dirty canary birds. Others were arrayed in a

variety of weather-beaten garments that had not been changed since the day of farewell to Sukkertoppen.

The next morning the members of the expedition took a small steamer for Halifax, and from there went on to New York on board the steamer Portia, a sister ship to the Miranda. Even here ill-luck attended them, for a fog descended, and in the fog the steamer ran into a schooner and completely cut it in two. The captain of the schooner, the steward, and two sailors were lost with the ship; only the mate being rescued by a lifeboat from the steamer. Since that time the Portia herself has met her fate, for later, she ran upon rocks and sank off the coast of Nova Scotia. And so these sister ships, named after Shakespeare's heroines, have both suffered a sea change in much the same manner. Perchance elective affinity has brought them together far down amid the mighty procession of wrecks in the deep waters of the North Atlantic.

We were nearing home and a few of us were sitting upon the deck of the Portia looking out upon the wrinkled sea. Suddenly it struck me that it would be a pity that so many good fellows already bound together by the ties of common experiences should lose trace of each other when the busy swarming land should be reached. I therefore suggested that we should organize a club as a link to join all the members of Dr. Cook's Arctic expedition and keep them from entirely losing track of each other. The suggestion was accepted, and that afternoon, in the smoking-room of the Portia the Arctic club was formed, which it was agreed should assemble at an annual dinner sometime between Christmas and New Year's Day.

From such meetings, confined at first to members of Dr. Cook's expedition, has grown the Arctic Club of to-day, which now embraces in its membership every prominent polar explorer in the United States. It has become a representative club, the only one of its kind in existence; and now about its board men who have made their names famous in Arctic work are wont to gather, and over the walnuts and wine, recount their strange and exciting experiences in the great "White World."

AN ARTIST IN THE FROZEN ZONE

ALBERT OPERTI.

Albert Operti was born in Turin, Italy, March, 1852. Historical Arctic painter; member of Peary's Arctic Expeditions, 1896 and 1897. Made first casts of North Greenland Eskimos. Paintings, Farthest North obtained by Officers of U. S. Army; Rescue of Greely; Finding of De Long by Melville, "Farewell." Second Grinnell Expedition.

ALBERT OPERTI

AN ARTIST IN THE FROZEN ZONE

By ALBERT OPERTI

IF THE reader imagine himself writing letters seated in an express wagon which is being driven rapidly over a rubble-stone roadway, on a cold, snowy, blowy day in February, then he may gain some idea of the conditions under which the work of taking plaster casts of the Eskimo was effected during the trip North with the Peary expedition of 1896. Without studio facilities, with few tools, and with every inconvenience possible to encounter, the work was successfully performed. A few casts were made in semi-comfort, on board and ashore, but at all other times under great difficulties.

The necessary outfit consisted of five barrels of fine quality plaster of Paris, three gallons of vaseline, two hundred pounds of modeling clay, some salt, and a few iron pails. These were especially packed and shipped from New York to be put on board the steam sealer "Hope," at Sidney, Cape Breton. My personal outfit for this work was made up of a bundle of quill toothpicks, cotton batting, a ball of twine, tissue paper, tape measure, calipers, and a few modeling tools. The plaster of Paris was stowed in the hold near the boiler to prevent moisture—which reached it, nevertheless.

I found from experience that vaseline was more convenient in the oil state. In the original form it would freeze hard and required constant heating over the boiler, to the detriment of the work.

Upon reaching Cape York, the Eskimo came over the ice to the ship, fog preventing our going close to the

shore. About twenty of them were looked over and selected as models and subjects. Coffee and ship-biscuits were served to them to gain their confidence. These Eskimo were allowed to remain on board to make fur clothing, be measured, painted, photographed and cast. Careful and accurate measurements were made and recorded on blanks brought for the purpose. Most of them were short of stature, both men and women, with very small feet and hands, short arms and legs; they were rather long waisted and broad shouldered. Many had well shaped figures and limbs. The faces of some of the young people were good looking, despite the dirt.

Some of the men, women and children were housed between decks. A tent was triced up, with a couple of oil stoves to warm the interior, and my work began. The fog had lifted, the "Hope" was headed up the coast for Whale Sound, the wind began to blow, and the ice became thicker. We had to punch our way through to gain time.

The "Hope" would thump into a mass and rise, slide back some yards to get headway, then push forward again; the great ice masses grinding and crunching along her sides. We would rock from side to side, sometimes upsetting articles which were not secured. Fearful squalls of snow would come down the mountain side and sweep over the decks, causing everything to rattle and shake. The captain, up in the crow's nest, the mate, in the foretop, and the boatswain, on the bridge, were passing the word, "Port!" or "Starboard!" to the man at the wheel, thus picking out the soft spots through the ice floes.

I took sketches with half frozen fingers, for it is fearfully cold there when the wind blows, even in summer. Meanwhile a couple of the crew were fishing for my plaster. It appeared, damp to the core. But there was no time to lose, so pail after pail was carried to the engine room to dry.

Bang! We struck a mass of ice as the ship rocked to one side. I clutched my pails filled with plaster. The barrel tried to go over the side, but a quick lashing to the ship's pump saved it. My model was in waiting for me during all this.

Each man had his own [illegible] look after. I had to

get along as best I could and act as my own assistant. Once in a while I would get a chance, and approach Lieutenant Peary, who, with the captain, had all he could do to see ahead, to ask him to come and speak to one of my subjects regarding disrobing.

At first they were not inclined to allow themselves to be thus used. Indeed, I was fearful of results, but the promise of presents very soon conquered their objections. After several hours of the greatest excitement, some dirt

MAKING A CAST UNDER DIFFICULTIES

was scraped and washed off, a small stick with a little piece of canvas tied on the end being used to rub over the flesh. The use of soft soap and warm water from the

boiler, which in less than ten minutes became cold, then a scrubbing, and my subject was ready for oiling. The odor was anything but pleasant. Matt Hensen came to my rescue, helping to clean and rub. Mr. Figgins, our taxidermist, and Mr. Lee also assisted at times.

FIRST ESKIMO BUST

My casting sometimes was performed in the hold, by the light of several candles. A couple of hatch covers were laid side by side over one of the coal bins, as a floor. The model was placed on his back and told to lie still.

Getting clay into shape and mixing plaster, when my surroundings were unstable and threatening to fall apart every moment, were not quite to my taste. Referring to my field notes, I find that one eye was constantly on the ship's side, expecting to see the crunching ice come through. The terrible grinding along the sides would make every one of us start. At times my mould would split in pieces.

After a few were cast I had little trouble so far as my subjects were concerned. They were willing to have hands, feet and faces cast. I selected one Eskimo, a bright, quick-witted fellow named Keshu, to carry water for me. He was always jolly and smiling, quick to repeat words, and already knew considerable. A very good cast of his face was made, also of his son Menè, a smart little fellow, who, with five other Eskimo, was brought to the United States on board the "Hope." Four of these died; one returned with Lieutenant Peary; Menè has become Americanized, and is now living with an American family.

Some of the old Eskimo came in for their share, and full figures of male and female were secured. At Meteorite Island, while working on the meteorite which was brought to the United States, the tent was pitched on shore, and a standing figure cast, which almost went to destruction.

We could only remain a certain length of time, for fear of being frozen in for the whole winter, as the ice was making fast. The wind almost blew the tent down during our preparations. It was impossible to keep the oil stoves lighted, rain and snow fell, and uncertain light made working most difficult. Yet here was my chance; the Eskimo, shivering despite the blankets wrapped around him, was standing in position. My plan was to get as much of him at one casting as possible, for it was the last chance of the season. A thick wall of clay was built around him. Mr. Figgins and myself painted him all over with vaseline. Pail after pail of plaster was mixed and poured over the shivering body; the dust from the barrel as the plaster was shoveled out filled the tent and made us look like millers. I believe the chattering Eskimo was promised a gun to stand this dose.

Five pails had been mixed and we had to hurry. It was like feeding torpedo boilers. Slowly the white fluid rose around the Eskimo. Our backs ached; perspiration dripped from our brows and froze. Outside the gale was furious, for the wind had risen and we were having bad weather. The work on the meteorite occupied all the attention of every one else. I saw that I should need more help ere the plaster reached the shoulders. In went pail after pail. I was trying to speak Eskimo words, English—anything to keep the model quiet. Figgins also tried Eskimo. I called for some one to give me a hand, but no one heard. Suddenly I saw Figgins throw his arms around the lower part of the figure, as the beautiful plaster began to ooze out. I frantically threw myself around it also and hugged on the other side. Meanwhile the Eskimo commenced shouting something, which brought some of the tribe to the tent. They poked their heads through the tent flap, giggled, laughed, and kept on laughing.

At this moment I felt that unless I got help, the whole thing would fall apart. I shouted "Help!" twice, then "Bear a hand, quick!" This brought five of the sailors and Captain Bartlett, who on the instant burst out laughing to see Figgins, who was six feet tall, and myself, four feet four inches, spread out like eagles on the ground with our arms around the mass of man, clay and plaster.

I sputtered out to them to grab the thing and hold it together. All, of one accord, did so. I got up to think a moment and then laughed myself. The sight was the funniest I ever saw, but I had to save my mould. Slowly each man drew away, the plaster getting the "set." After a few moment's rest, we had to cut the "husky" out of his crust. For the next hour and a half it was hammer, split, and wedge. Piece after piece came off, till finally the native was liberated, more dead than alive. He was wrapped in blankets and carried to the galley fire, where hot brandy and coffee were given him. Two of the natives rubbed him with canvas to restore warmth.

I returned to look after the wreck. I believe I worked harder during those three hours than I ever did in my life before. Figgins had a backache for three days. After this, word had evidently traveled through the tribe to look out for *opixuah*, which is the Eskimo name for white owl.

Taking the cast of the face, the most difficult work of all, gave me much trouble, as the subject had to lie on his back, allow a quill to be stuffed up each nostril with cotton batting, and tissue paper over the eyes and mouth, while the skin was well oiled, clay built around the head, and plaster poured over all. The heat from the plaster as it hardened often blistered the skin, and just as the "set" was reached, the fellow would blow up, and away would go the mask, cracked and broken. I would save these pieces and try again, until I secured many good masks. All of these were then packed in sawdust, boxed up and stowed away, to be worked over some day for the Museum of Natural History in New York. I had thus the honor to be the first professional artist to take casts of the Arctic Highlanders over the Arctic Circle.

My outfit for art work on these voyages to the Arctic was at first elaborate; subsequently very simple. A good supply of colors in oil, water, pastels and crayon, academy boards, sketch books, easels and all the usual tools of a well-appointed studio were placed on board; but with few exceptions I might have saved much expense, which, on my return, I charged up to "experience." For instance, my sketching umbrella, stool and many other things with which I had carefully provided myself, were never used.

The expedition was not a sketching tour, and I soon found I had to seize the opportunities for this work as they presented themselves. The bewildering beauties of sunrise, day and sunset, as we sailed northward, called for the simple materials at hand at all times; neither could the ship be stopped to allow of a sketch or painting, so my work must be made with rapidity. In storm, wind, rain and snow, rough and smooth seas, at all times, pallet and brush worked constantly; in all temperatures, uncomfortable positions and situations I lost nothing, for I considered the great event in my life had come; to paint at the very heels of the Polar explorer, on his field of action, when the stern reality attending a journey to the Far North was an ever-present fact.

HIGHLANDERS

My working outfit during the voyage was simple; a box, something like a knapsack, provided with grooves in which half a dozen academy boards were fitted, an extra groove to receive a pallet charged with colors, some painting rags and a handful of brushes. With this outfit some four hundred sketches in all were made. On my second trip north, having learned by experience, I provided myself with a box furnished with a cloth flap to keep out rain and snow and which could be fastened upon my shoulders.

As the expedition steamed toward the scene of great Arctic tragedies and mysteries the desire that nothing should escape pencil or brush kept me on deck often eighteen or twenty hours out of the twenty-four. And what a world I found myself passing through; icebergs, great towering hills of glittering crystal; the rugged and beautiful coast of Labrador, beautiful atmospheric effects: all were captured in color; and all around me the photographers of the party were busy. Then, as we pushed farther north,

what emotions stirred me as we stood upon the threshold of the land which had witnessed so much suffering: the land of Doctor Kane, Hayes, Captain Hall, Greely and others. To pick up relics of bygone days, to mentally review, as I worked, the narratives of those. daring explorers, to feel the same cold breath of the ice-bound world that had locked them in; many a time have the tears dimmed my eyes and frozen upon my cheeks at the recollection of the men who had starved in that Polar land, as I painted the barren rocks, the scene of their suffering, in that great region of awful solitude.

Visiting Port Fanke, where Doctor Hayes wintered in company with Lieutenant Peary, the grave of Professor Tomntag impressed me deeply. It had been disturbed, possibly by bears, for a skull and a few bones were all that remained. That great mind, astronomer of the expedition, had passed away in the midst of his beautiful work in the Far North and was buried there alone; yet not alone—a few other graves are scattered over the Arctic Circle: at Cape Sabine, where nineteen men ended their suffering and toil. Nor do I forget Lifeboat Cove, where the Polaris was wrecked and nineteen of her crew went adrift on a field of ice, to live one hundred and ninety-six days, until rescued by the U. S. S. Tigress off Labrador.

Surrounded by these scenes I worked incessantly, for time and the ice did not permit a long stop in our journeyings. Nor is the difficulty of reaching these places appreciated by those who have never tried it, neither the trials of one who undertakes in the Arctic regions the work I had in hand. These regions are replete in color, form and never-ending variety; animal and bird life and the Eskimos were another source of food for the painter's brush. I returned, as it were, with a new set of brains and the fascination still holds me to revisit that northern land, did health permit. For perfect health is one of the first requisites for a journey to the Arctic, whether it be for work or pleasure. Pleasure, indeed, there is if one chooses the proper season. I would advise my brethren in art, and sisters also, to visit the Danish Eskimo settlements of Greenland during the summer months; they will find beauties there of which we never dream in our more temperate zone.

ARCTIC FRIENDS AND ENEMIES

ANDREW JACKSON STONE.

Andrew J. Stone was born in Missouri, 1859. Has traveled over almost all parts of Arctic and Sub-Arctic America. Sledged the extreme Arctic coast throughout an entire winter. Is making special study of animal-life of the Far North.

ANDREW JACKSON STONE

ARCTIC FRIENDS AND ENEMIES

By ANDREW J. STONE

HEN one glances at a chart of the vast region of country that stretches away to the north of the United States and Canada, washed by the waters of Hudson Bay on the east, Bering Sea on the west, and the great Arctic Ocean on the north, he has before him an Arctic wilderness so great as to cause every section of the Arctics, where exhaustive research has been conducted, to seem small in comparison. Yet this expanse has been avoided and neglected by almost all explorers, naturalists and scientists, while in many places along the shore of Greenland, Spitzbergen and Franz Josef Land the stones have been turned over many times in the hope of finding something new and of interest to science. Just why this is so is hardly clear, unless it be that most men fear to trust themselves very far from the ships or base of food supplies. Certain it is that when one enters the heart of this great wilderness, he is further from civilization in time of travel and further from any real base of supplies than the traveler in any other part of the Arctics, and I might add that the difficulties of travel are almost or quite as great.

Arctic and sub-Arctic America is rich in its animal and plant life. There is material which is of a hundred times greater importance to either the scientific or commercial world than that of the more barren islands farther north.

Its zoölogical, botanical, geological and mineralogical wealth is unquestionably great, to an extent that is not to be compared with that of Greenland and other northern regions. The influence of this will be strongly felt in the commercial world and many branches of science are bound

to reap an abundant harvest of rare and beautiful things. Within the radius of this same region is the location of the magnetic pole, and meteorolgical work finds the greatest incentive in latitudes 70° to 74°.

A desire to know what this great unknown north contains has for a long time appealed to me, and for seven years I have traveled it almost constantly—traversing its length and breadth, following all of its greatest rivers, climbing its mountain ranges, skirting its most distant shores, and penetrating its most inaccessible recesses, and facing every climatic condition known to it, at every time of the year, devoting myself to its animal life with a determination to make known its character and make possible its classification. Just how well I have succeeded may be best appreciated by the very complimentary tribute paid me by Dr. J. A. Allen, of the American Museum of Natural History, of New York City, in a recent talk before a representative body of men interested in such work. Dr. Allen said, "Mr. Stone undoubtedly has a better knowledge of the large mammals of Arctic and sub-Arctic America than any other man living."

When I commenced this work I realized that I was setting for myself a task so difficult that it was characterized by most of those best informed as all but impossible. I knew that I must suffer many deprivations, hunger, cold, and fatigue, and besides all this if I were to succeed I must work, work, work. There was no end of work, and as I never had many white companions, and often for months I did not have any one with me but the native people, I can look back and appreciate that the sole support of my health and the one thing that kept my spirits alive, was my work. All these years of travel in such wild and trackless regions were not lacking in adventure and in situations that at times were really dramatic.

Should I live for a thousand years, my experiences on the Liard River, in the spring of 1898, would remain fresh in my memory, to the slightest detail. To make my situation there best understood, I reached a point on the Liard River October 20, 1897, at a point just below Cranberry Rapids, a small fur-trading place, where I wintered. Thence to a point below Hell Gate Canyon, on the Liard,

a distance of one hundred and twenty-five miles, was a continuous series of rapids and waterfalls impossible by boat.

During the winter, with the help of several men, I freighted the bulk of my baggage and supplies, almost a ton of stuff, on the ice, with dogs, to a point below Hell Gate Canyon, where I constructed a strong log cache and stored everything very carefully, to await my coming in the spring, when I would return to build a boat, in which to follow the Liard to the Mackenzie after the ice had gone out. To my very great surprise, when I reached a point about one mile below Hell Gate Canyon, I found two white men in camp, who said they proposed to remain there for the winter and then to return to the Mackenzie. They represented to me that their food supply was a little short and that they had no guns nor ammunition, and prevailed on me to supply this need. It was finally agreed that I was to send them a gun and ammunition and a few other small items in consideration for which they were to help me build a boat in the spring and aid me to transport my supplies down the Liard to the Mackenzie.

During the winter I had an opportunity to learn something of the native people who inhabited the country in the neighborhood where my supplies were cached. The fur trader with whom I lived was familiar with all their doings for years and gave me accounts in detail of many of their atrocities, among them the murder of two trusted employes of the Hudson Bay Company who were traveling through the country, and of two French Canadian trappers who had gone there to trap for furs. The natives around Hell Gate Canyon were not a regular tribe, but were a lot of renegades from neighboring tribes banded together, after having committed such offenses among their own people as to make it necessary for them to find a new hunting ground.

During my winter's stay on the Liard River many accounts of bloodthirsty and savage deeds came to my notice. A few Indians lived near our little trading post, and reports of all incidents of importance occurring among neighboring tribes or people came to them and from them to the trader, who communicated them to me. One story

concerned an Indian hunter and his wife, in camp some thirty miles from any of their people. Game grew scarce, and starvation threatened them. The woman was in delicate health and unable to travel. The man resolved to save his own life by fleeing to his people, but being unwilling to leave his wife to die, he shot her. Another family was in a similar situation; the husband in this case did not have the heart to kill his wife, so he left her without fuel, food or blankets, to die by starvation and freezing.

The two families that lived near us during the winter were Kaskas, and although they were not a part of this renegade band that lived in the mountains near Hell Gate, yet they received and dispensed the news with perfect confidence, as they had never even heard of law or officers of the law. While the morals of these two families might be, and evidently were, far superior to that of the renegades, yet a short sketch of their self-imposed laws may make my story more appreciable. One of the families consisted of Iron, his invalid wife, a little girl, and a boy slave. The other was composed of Powder and his wife. Powder was a *shamen*, or Indian doctor.

The first I ever saw of Iron was one dreadfully stormy night in October. All day a fearful snow storm had raged and my helpers and I had worked with a will in moving our supplies around Cranberry Rapids. We had only just completed this laborious task when night came upon us, and in the storm and darkness we groped our way while making camp, gathering firewood, and preparing for the night. At last we had a large canvas spread, under which we placed a bed of pine boughs, and soon a huge log fire in front gave cheer and life to the scene. Not a bite of food had been tasted since morning, and a rousing hot supper was prepared. When all was ready, my entire party seated themselves on the pine boughs underneath the canvas, and in the warmth reflected by the

great log fire we were soon in the midst of an enjoyable feast.

Suddenly there appeared from out the darkness on the opposite side of the fire two figures. One was a tall man, slightly bent, with sharp features and keenness of eye, carrying a rifle. He wore snowshoes and was comfortably clothed for a northern Indian. The other was a boy, about twelve years of age, with long, ragged hair, clothed in a few filthy rags, and wearing a most pitiful look of hunger, misery, and degradation. Both were wet with the falling snow, and Mr. Simpson, the fur trader, whose companionship and aid it was my good fortune to have, invited them under shelter.

This was the first time I ever saw Iron. He came around, and seated himself in a comfortable position, and accepted a plate of food. But in spite of Mr. Simpson's insisting upon it, the boy remained out in the storm on the other side of the fire, leaning against a tree and gazing at us with a look of wonder and fear. He was finally, however, induced to accept a plate of food that was passed over to him, and he devoured it rapidly, still leaning against the tree.

I asked Mr. Simpson why the boy would not come around, and he said he did not know. Then I said he must be a slave and afraid Iron would punish him if he came under shelter; and Mr. Simpson said that was the case.

The only shelter the boy had from the storm that night was a part of an old blanket about one yard square. Later in the winter, when the thermometer was ranging between 45° and 50° below zero, I found this boy living alone in the woods, without other shelter than the small square of blanket. He slept at night by a little open fire, turning over and over in order to prevent any part of his body from freezing.

A little later in the winter, Powder, the *shamen*, told Iron that the boy was a witch, and that Mrs. Iron would never regain her health until the witch was destroyed. The news came to me one day that Iron and Powder and the boy had gone hunting, and four days later Iron and Powder returned without the boy. A hole had been cut through the thick covering of ice on a neighboring lake, a stone

tied to the boy's neck, and the boy-witch or evil spirit had gone to the long, long home, whence slave boys and witches never return. These were fair examples of the better class of Indians, or Indians belonging to the regular tribes that surrounded us, and from this description may be had a fair conception of what the renegades at Hell Gate were like.

Winter passed, the first of April came, and I decided to travel once more to Hell Gate, where my stores were cached, and superintend the building of my boat, as the river ice would go out about a month later. There were yet two sled loads of stuff to go, and the only available help was Powder and his wife and dogs. So with this interesting Christian couple, who knew nothing worse than murder, I was to make my final trip of one hundred and twenty-five miles over the ice with dog sleds to my cache below Hell Gate, where I expected to find the two white men in camp, waiting to help me in building the boat.

Skipping entirely every incident of the trip, I was horrified, on turning a bend in the river about two miles above my cache, to find camps of the renegade Hell Gate Indians. Powder became very much excited, and as the Indians came running down from their camps he stopped his sled and indulged in a " powwow " of considerable length. I could not understand a single word, but I knew by their manner and gestures that much of the conversation was concerning myself. All in all, the situation was not pleasing, for I knew what these Indians were. I had been repeatedly warned by whites and Indians never to be caught alone among them, and I thought a meaner lot of murderous faces I had never seen. I was full of misgivings, and from there almost to the cache I found a continuous string of camps, all occupied by this band of renegades. On reaching the cache I found it yet intact, but the two white men had disappeared with all their belongings, and there was every indication that they had abandoned the camp weeks previous.

My dilemma was apparent at a glance. I was in a trap, and there was no help for it. When I left the little fur-trading place to go down the river, my only helper and friend, Mr. Simpson, went away, going up the river, and

we were now separated by at least two hundred and fifty miles of country difficult to travel.

My situation seemed perilous. Powder was actually frightened for his own life, for he knew the Hell Gate Indians and feared them, and he begged me to return with him that night. The situation had confronted me so suddenly that I scarcely knew what I could do, or what action to take, but I replied to him that my property was in that cache and that I should not desert it. That night a number of Indians surrounded us and plied me with many questions, only a part of which I was able to interpret.

My cache stood in the centre of a clearing on the river bank of about one hundred yards in extent. Near the cache were two pine trees. The snow had disappeared in the opening, leaving the ground bare, and after getting rid of the last of my callers, I prepared to sleep underneath these trees in the open, and did not erect any tent or shelter of any kind, or put up anything that would form a screen, behind which the devils of Hell Gate could approach me. I did not sleep much that night, though I was very tired, having run about fifty miles the day before, and I was up early the following morning. Breakfast was soon finished, and in spite of all my protestations, Powder and Mrs. Powder took their departure for the country of the Kaskas. Murderer though I was aware that he was, I *knew* him, after all. He was a companion in a way; he did not belong to the renegade band, and I greatly regretted to see him go. As I stood alone on the river bank that frosty April morning and watched him, with his wife and dogs, disappear around the bend of the river more than a mile away, a feeling of loneliness came over me unlike anything I had ever before experienced, and I could almost have forgiven him the murder of the boy, had he only remained with me.

I was alone at Hell Gate, in the heart of the greatest wilderness on the American continent; all my supplies and equipage were awaiting some form of transportation to regions further north; I was surrounded by the entire band of red devils that constituted this renegade band, about seventy-five people.

It was really hard for me to think. But the first thought

was that I was glad that my friends knew nothing of my true situation, for they could not have reached me short of one year, if at all. My knowledge of these Indians, their customs and their superstitious beliefs, was here of great help to me, and was undoubtedly the one thing that saved my life.

I knew they would not break my cache themselves, for in their belief, were they to do so, the evil spirit would get them. It was a fortunate circumstance that I chanced to have some food in my sled, and I decided to make this last as long as possible. During the day I had many curious visitors, all anxious to see my guns, knives, and camp outfit, and to learn what I had stored in the cache.

The day was one of nervous expectation, and I thought it would never end. I learned that a young man was actually dying with consumption in camp about half a mile up the river. This to me was a special source of anxiety, for the reason that should he die while I was there, his people would claim that his death was due to my presence and that my life must be taken in turn. But one thing could have averted this, and that would have been by the payment of a certain amount of blankets, guns, tea, tobacco, and such like merchandise to the friends of the deceased as a recompense for the young man's life, and this in my case would have meant no less than the end of my expedition, and my escaping, if possible, to civilization.

Long days and longer, restless, sleepless nights passed, one after another, and every day I was harassed by those red devils in every sort of way. They wanted my guns and ammunition, they even coveted my camera and the very blankets I slept in, and they threatened violence to me if I did not open the cache and show them what I had and divide with them. Every night I slept in the same place in the open—when I slept at all—and I kept Zilla, the only dog and only companion I had, chained at the back of my bed, with three loaded rifles and extra ammunition in front of me.

Ten days had passed, during which time I had been on guard from early morning till late at night, using every precaution, every particle of diplomacy that I could command in order to prevent serious friction. I had not

during all this time given any of them a bite of food or submitted to a single one of their demands in any way, for I knew perfectly well that should I show any indication of weakening, they would take advantage of it. Should

IN THE FROZEN NORTH

I give them an ounce they would want a pound, and once they secured a part, they would have all; and should they succeed in getting possession of my property they would then murder me as a precaution against any possible trouble. My only safety was in maintaining a fearless and independent attitude, and in avoiding everything that would give any chance for trouble.

One morning, while I was making coffee for my breakfast, an Indian, a powerful looking fellow, and the one who had been the most persistent and troublesome, came up and asked me for the balance of the package of coffee, all the coffee I possessed. On my refusal, he remarked: "Mica delate cultus," meaning that I was everything that was low and bad. For the first time my temper got the best of my judgment and I made for him with a club. He was too quick for me, however, and beat a rapid retreat. The following night I remained awake, for the redskins had kept to themselves all day, and I felt sure, after what had happened that morning, that they were only waiting

for night to come that they might make a combined attack. The night was uneventful, however, other than being a sleepless one, and the following morning, while I was making my breakfast, I saw this fellow with his family and dogs moving down river. Pretty soon there passed another, and then another, and all day long they kept moving by. What a relief, and how proud I was, for I knew I had defeated their purpose. In twenty-four hours the only Indians remaining in my neighborhood were the one family with the consumptive son. I then, of my own accord, carried them rice and dried fruit, and such other things as I could spare.

The story of my experiences at Hell Gate would fill a volume and I cannot begin to relate them in this article, but there is one incident that occurred during the time I was surrounded by the Indians that I cannot omit. As I have already mentioned, the snow had disappeared in the clearing, but in the timber encircling the clearing in the rear, the snow was yet of considerable depth and crusted on the top. I was awakened one night by the growling of Zilla, and the character of his growl told me at once that something was wrong. I sat up in my blankets and put my hand on his head to calm him. At the same time I heard footsteps breaking through the crust on the snow in the edge of the woods back of the clearing, only about fifty yards away. Tramp, tramp, tramp! There they were at last, the suspense would soon be ended, and I drew up one of my rifles and cocked it carefully, that I might not make any noise. I was not excited, I was not even nervous, for I had thought of and expected this thing too long to feel any new fear of trouble now. Rather the reverse, I was glad; I felt the long strain I had been under was to be ended, and anything, even death, was preferable to such suspense. The one thing I thought of was killing Indians, and I sat revolving over and over in my mind the possibilities of satisfying this desire. I could have taken a position behind the trees, but I feared to move lest I might be seen.

Tramp, tramp, tramp! The footsteps continued to encircle my position, keeping in the edge of the timber, a regular, even, cautious step, but always breaking through

the crust on top of the snow. Zilla listened attentively, but never growled after I once patted him on the head. He knew I wanted him to be calm. Evidently the fellow was trying to get me between himself and the sky line, for the night was clear, but fortunately there was no moon.

On around the edge of the timber continued the footsteps. I was chilled through and through, and I was growing impatient. The footsteps neared the edge of the timber on the river bank and then all was silent. I waited for some time, but could not hear a sound. I could not stand it any longer; the fellow might be crawling toward me on the bare ground in the clearing. I proposed to let him know I was awake and bring him to his feet. I hallooed, there was no response of any kind, no rustle of footsteps or shifting of position. There was no rush of the enemy from any point. I knew not what to make of it. I waited for some time and still not a sound. I was puzzled; I tried to persuade myself that I had been dreaming, and I finally lay down in my blankets, almost frozen.

It was just getting warm and comfortable, when Zilla growled once more and I sat up in my blankets again. Sure enough, there was the footstep again, and this time it was coming directly toward me, the man evidently keeping the largest tree between himself and me. One advantage I had, my position was such that I knew on which side of the tree he must appear; my rifle was directed to a point where I thought it would do the most good, and my finger was on the trigger. The footsteps were now very near; they were just behind the tree. The moment of action had come; I was full of expectation and actually dead to every sense of fear. There was no escape, no alternative, but to meet conditions as they arose. An immense white Indian dog stepped from behind the tree. For a moment I was almost paralyzed, so great was the surprise, but gradually the true situation came to me. There was a piece of moose meat hanging in the tree above my head, and this strange dog had smelled it and had been trying to find some place of approach whereby he might get near enough to secure it. And it was his tread and not that of a man that I had heard. But the noise created by its breaking through the crust on the snow

was exactly the same that would have been caused by the tread of a man.

After the Indians left me, I took one of my rifles and Zilla, and went down the river prospecting for a place suitable for building a boat. I found a very desirable place on the river bank, at the edge of a large forest, about five miles farther down stream. I could not live so far from my work, so I decided to move my supplies down to this place. I hooked Zilla to the sled, and at the end of three days I had moved everything, set up my tent and put my new camp in order. I had never built a boat, or helped to build one, in my life. I had no lumber with which to make it, and no way of cutting lumber, for I had no one to help me run a saw. I had seen the natives use large skin boats, but I had no skins and nothing large enough could be made from birch bark, even though I could manipulate the bark. Canvas must be the only solution of the problem, and I at once went through my outfit to see what I could find. I discovered two pieces, somewhat worn, that I thought would be large enough if sewed together.

I decided to make a boat twenty-four feet long, five and one-half feet beam and twenty-one inches deep amidships. I set to work cutting tall, slender young pines, which I hewed and planed and bent to shape, a work that required a good many days and taxed my skill to its greatest effort. After many days of toil, from early morning till late at night, the perspiration often streaming from me as I have seen it do from a man in the harvest field, the frame was made complete, and I was so pleased with it that I photographed it.

I then went into the woods and found two tall, straight pines—one of them measuring fifty-five and the other fifty-seven inches in circumference. I cut them down and took the bark from each in a single piece to the height of twenty-five feet. I dragged these over and covered the frame of the boat with them completely, leaving the smooth inner bark out. I then stretched the canvas over this perfectly tight and made it fast, after which I went into the woods and gathered a large quantity of spruce gum from the trees. I melted bacon into grease, and, mixing the gum

and the grease, I heated them over the fire until they ran together, forming a pitch with which I painted the canvas, using a stick with a rag wound around one end for a brush. I dressed out my oars from green spruce, and the boat was finished.

Getting under the boat I knocked out the props with an ax, and then I began an effort to move it down over the river bank. It evidently weighed about eight hundred pounds, and my first two or three attempts to move it failed. But improving my position, I at last felt it go forward about an inch, and then again, and little by little I worked it forward, endwise, down the bank and upon a sand beach at the edge of the stream. Once on the smooth level sand it came down all around me, of course, and I began to realize that it might be difficult to get from under it. I could raise one side, but when I attempted to get out, my purchase was taken from me, and down came the boat across me, and I could get no farther. I only gained my freedom by scratching a hole in the sand underneath the gunwale, sufficiently large to admit of my crawling out, just as a dog might have done.

Once on the outside, I rolled the boat over in such a manner that it struck the water right side up, a rather undignified launching for such a stately craft. But it sat on the water nicely and was now ready for its valuable cargo.

In spite of hard work, my feeling of loneliness while building my boat was beyond the conception of any one who has never been cut off from the world. Zilla was some company, and after each day's work was done, or dusk would put a stop to it, he and I would go for a run on the beach, and he enjoyed this quite as much as myself. But most of the time he, too, seemed very lonely. Much of the time I could eat but little of the food I prepared, and when the heavy ice broke on the great river and began to move, its constant grinding and pounding and booming created such an awful noise for five days that I could not sleep.

As the last of the ice was going, I had everything ready and followed. I prepared a life raft with some some rubber bags, so that in case my boat struck a snag and sank, I

might have some chance of saving my life. I manned it among floating ice and logs and through rapids, and was swept by strong currents past ugly snags; strong side winds sometimes drove me on shore; but in spite of all my discouragements, two days after leaving Hell Gate, Zilla and I landed at Fort Liard, a little Hudson Bay trading place, one hundred and fifty miles below, without accident or the loss of an ounce of my outfit.

Zilla, the most faithful animal I ever knew—though only an Indian dog—died the following winter, on Christmas eve, just to the west of the mouth of the Mackenzie, on the Arctic coast. He was sick, his feet had been frozen and were very much swollen, his coat of hair was not heavy enough for those regions, and he had worked and suffered until his heart was broken. I buried him Christmas morning in a snowy grave, and as I turned away the tears came to my eyes. I felt that I was leaving behind one of the dearest and most faithful of friends, and I shall never forget my only companion at Hell Gate.

THE ICE TRAIL ON THE YUKON

JOHN BIRD BURNHAM.

John Bird Burnham was born in New Castle, Delaware, 1869. In 1897 went to Klondike, shooting White Horse rapids in twelve-foot canvas canoe. Also made adventurous trips over the ice. Has hunted and killed all varieties of North American game.

THE ICE TRAIL ON THE YUKON

By JOHN B. BURNHAM

THE exodus of four hundred miners from Dawson City to the coast over the ice in the winter of 1897-98 is one of the most picturesque features in the whole graphic history of the Klondike. A midwinter journey of six hundred miles in a country where minus temperatures of sixty and seventy degrees are recorded is hard enough at best, but when supplies have to be carried for this distance the difficulties are vastly increased. Many of the men carried their food on sleds, which they drew themselves, and some even packed it on their backs, and at night slept without stoves or tents on

the snowy shores of the Yukon, or on the ice of the river itself. The stamina and will power of these men are almost beyond belief.

John Peché, the Canadian government messenger, who late in December was the first man in from the outside world after the river closed, remarking on the fact, said: "You Americans are hard men to kill. Coming down the river I met over three hundred men on their way out, and most of them were from the States and knew nothing of the cold that *is* cold, or how to take care of themselves right. Yet they acted as if they were on a picnic, and as if the devil were really dead. They didn't seem to mind little inconveniences like frozen feet and cheeks, and hands with the nails coming off and blistered with the frost. They're reckless devils, and a more cheeky set I never met. With the pants burnt off their legs and the faces on them like brown parchment from the fire and frost, they had the gall to give me advice about the country, to tell me how many pairs of moccasins I'd need for the trip, and the like, when I was born on a snow drift and got my growth under the midnight sun. You Americans would storm Hades if you thought the heat had melted out any gold down there; and you'd put up so good a bluff and are so nervy, I'll be bound you'd get some of the stuff if there was any there."

Just above "Five Fingers," on our trip to the coast in January, 1898, I saw some ravens tearing at an object which on closer inspection proved to be the ribs and upper portion of a man's body. There were many gruesome associations on that journey in the dead of the Sub-Arctic winter. Tottering out of the blue-grey haze of snow and frost-laden spruces, came from time to time starving men, almost as emaciated as the plague victims in India, with the light of an insane fear in their eyes, whom bitter experience had taught that it was better to risk death by stealing food rather than to risk refusal by begging for it.

At Fort Selkirk, in December, two half-crazed men came into our cabin and without a word seized upon a loaf of bread and some prunes, which was all the prepared food in sight, and began eating ravenously, like beasts that expected to be driven away. When they had finished they

left without asking for more or saying a word of thanks for what they had taken. The men had black spots on their cheeks, where the flesh was frozen into the bone and would never grow again.

"THE LOVE OF ADVENTURE"

Other men froze their feet; it was always both feet. Of the eight men in this condition whom I saw on the journey out, there was no exception. Willie Birne, who was only sixteen and small for his age, walked for five days over the ice with his feet frozen at right angles with his legs, and though he suffered, he did not know the worst until a hole was worn in his moccasin and one of his great toes broke off. He had never been in a warm place during this time.

At the very end of the journey a poor fellow with frozen feet lay beside the trail waiting for a dog team to carry him to the lower levels of Chilcoot. A packer who happened along asked him the circumstances of the accident, remarking that he could not understand why the sufferer

had not known of his danger and taken precautions to save his feet before it was too late. At that very moment the questioner's own feet were frozen beyond hope of recovery.

I asked this man how it happened that he did not know his own condition. He said that shortly after leaving his tent that morning his feet had been very painful. He was wearing lumberman's socks and rubbers. He had stamped his feet, and presently the pain grew less and he imagined the circulation had been restored, when as a matter of fact the relief came from the total loss of sensation incident to freezing.

The pioneers of the ice trail fared the worst. Some left Dawson at the middle of October, weeks before the river closed. The mush ice which ran in endless stream past the log city gorged temporarily, and, supposing it had stopped for the winter, these men lashed their loads on their sleds and started. The Yukon almost immediately opened again, and they were caught in a trap. In the dark cañon-like valley marked on the maps as the Upper Ramparts, sledges were lost or broken and tents and blankets were thrown away. With packs strapped on their backs, the refugees struggled on, following the narrow rim of shore ice when not compelled to scale the almost vertical barriers of basalt rock.

Supplies gave out, and after five weeks of travel the first of the parties had only gotten as far as Fort Selkirk, four hundred miles from food and safety. They were tantalized by the sight of rafts laden with beef and mutton for the Dawson market, aground and abandoned on bars in mid-channel, a feast for the ravens, but separated from them by a gulf as impassable as that upon which Dives gazed; and but for the chance flotsam picked up at the river's edge from wrecked boats, and Indians at the Nordenskiold, these men of the vanguard would certainly have starved. As it was, they were reduced to the last extremity; and, insufficiently protected from the weather, they suffered the Eskimo's hell of slow death by freezing.

The old-timers in Dawson said the trip to the coast was an impossible task for hand-sledgers, and "a gamble" for the men with dog teams. They cited the case of George

Williams, the first man attempting the trip, who in 1886 went out on a desperate mission to secure aid for the miners in the forty-mile stampede, and perished of hunger and cold. The old-timers argued that no man could drag on his sled food sufficient to last for the six-hundred-mile struggle over the jam of broken ice that gorged the river.

The pioneers left a tortuous trail which above the Pelly crossed and recrossed the river, on an average of once in every mile. They could not take the shortest course from point to point, because of open water and other obstacles which later did not exist. The men who came after them followed in their footsteps, partly because they could not be sure that the detours were not still necessary, and partly because it is easier to follow than to originate. The open places had alternated from side to side of the river. The trail wound like a snake's track, and the weary pilgrims who followed it at times traveled two miles east or west for every mile they gained in the direction of their homes. There was little or no attempt afterward to better the trail. On catching up one evening with a party which had traveled ahead of us all day, I asked one of the men why he had not gone back a few rods on the trail after a particularly aggravating detour and made a cut-off which would have saved a mile of unnecessary walking.

"For the same reason, partner," said the man, with a smile that showed how sure he felt of his ground, "that you neglected to do it. Why didn't you think of all the sore-footed chaps that are following after you on the trail?"

The chief rush of travel occurred late in November and the early part of December. All classes were represented, from the Jew peddler to the millionaire mine-owner. Some, "gee-pole" in hand, dragged heavily loaded sleds, while others trotted along behind well-broken dog teams and had their hired men do the work of making and breaking camp. Others traveled by "Siwash Express," which carried passengers at the rate of a dollar a mile; only the passenger was not actually carried, but walked or trotted beside the sled, fully content that he had secured the transportation of food for himself for thirty days, and his blankets, at any figure short of a king's ransom.

Large parties were the rule at this time; the night was divided into watches, and in each mess one kept awake all the time to tend the little sheet-iron stove that warmed the tent. Only those who traveled without stoves or tents

"THE LONG LINE OF MEN"

knew to the full the biting severity of the cold of the long Arctic night. These men regarded their better-equipped companions in much the same spirit that the tramp sitting beside the railroad looks at the traveler in the Pullman. Yet some of them, before the journey was over, had become so enamored of the very hardships that they would not have changed for a berth with a dog team.

When the weather was not exceptionally severe, these men passed the night behind brush wind-breaks, with no fire, wrapped in icy board-like blankets, and perhaps buried in the snow for greater warmth. When, however, their evening camp-fires sent up a volume of pure white steam into the starry air, instead of the usual column of blue smoke, they knew that if they rolled in their blankets that

night without fire, it might be for a perpetual sleep; and to avoid death by the cold some men built double campfires, one on either side, and crouched between them during the hours of darkness. It is wonderful how much cold a man may accustom himself to endure. I have a vivid recollection of a night of grim emergency passed lying out in the snow, with only one thickness of blankets over and one below, when the thermometer hung on a nearby tree registered forty degrees below zero.

At the height of travel, the long line of men journeying over the ice trail was a gaily caparisoned procession, and not at all suggestive of the desperate race with famine and cold. The men who knew to a certainty that their provisions would not last to the coast, and who had no idea what they would do when the food gave out, wore carnival colored "parkies" of yellow and white, or white and blue, or tawny fox skins and the darker and richer furs. Even the projecting hoods and the grim face masks when seen at a little distance carried out the masquerade deception and seemed fitting accompaniments to the domino-shaped gowns, but a closer inspection of the faces, deep set behind their fringe of ice formed by the congealed breath, showed hard lines and little suggestion of mirth.

And yet the men were far from conquered and despondent. Once in a while, it is true, some poor frozen fellow came along. half-crazed with fear, presenting a pitiful and depressing spectacle; but with the majority the hardships and dangers brought uppermost the masterful spirit characteristic of the true pioneer.

The Klondikers who passed the Pelly in 1897 were nearly all from the States. Half of the men who registered at Fort Selkirk left homes on the Pacific coast. Many were sons of California "Forty-niners." These men will subdue Alaska and their sons will push on further to Siberia or to the mountains of the moon.

Of the victims of the ice trail little is known. Camps have been found with silent blanketed forms lying just as they had taken their positions months before, and the ravens that infested the river all winter were surfeited at other points than Dalton's abattoirs.

The Yukon runs so swiftly that it would remain open all

winter were it not for the fact of the floating ice cakes gorging at Bering Sea and jamming and backing up from the mouth to the head waters.

In 1897, the river stopped at Dawson, November 7, at Fort Selkirk, November 17, and at the Little Salmon, November 28. The jam backed up stream at the rate of about twenty miles a day, and to form it, cakes of ice eighteen inches thick were piled on top of each other, rising in places in hummocks ten or a dozen feet in height, like the paleocrystic ice of the polar sea. Not only was the surface terribly rough as a whole, but the detail of the ice masses also presented a collection of points and excrescences that bruised and blistered men's feet and made extra wrappings a necessity.

The snow was marvelously light and fine and dry, and back in the woods it never crusted, but rested as softly as sifted wood ashes. Still, out on the river it was packed by the wind till it would support the weight of a fox or a dog, but not that of a man or a sled. In midwinter, when the rush of travel had passed, breaking trail was terribly fatiguing work. There are two poles of greatest cold, one in Siberia and the other in the northern part of the North American Continent, and on the Yukon, as early as November, the temperature reached a lower point than any experienced by Nansen in his three years on the polar ice.

All is changed in the Yukon, and there is comparative comfort along the ice trail at present. The stern necessities and perils are gone, but the pioneer spirit still marches on, and the scene has only been transformed to the Koyukuk and the Kuskokwim and a host of unmapped streams lacing the Arctic waste.

Here the fruit farmer from Puget Sound and the Arizona miner, the Cambridge college man and the Texas ranger, shoulder to shoulder, or back to back, with Viking spirit, are waging the same lusty struggle. It is the love of adventure, old as humanity, that influences these men, and this, after all, rather than the greed for riches, which has been given the prominence, is the significant feature of the Klondike.

ESKIMO MUSIC

DR. ROBERT STEIN.

Robert Stein was born in Reugersdorf Silesia, Germany, Jan., 1857. Investigated ancient Eskimo dwellings and graves at Wilcox Head, West Greenland, in 1897, in connection with Lieutenant Peary's North Greenland Expedition. Leader of Stein's Expedition in Ellesmereland, 1899-1901.

DR. ROBERT STEIN

ESKIMO MUSIC

By DR. ROBERT STEIN

ONE of the items of knowledge which our teachers, some thirty years ago, were careful to impress on our plastic youthful minds was, that mankind was divided into three classes—civilized, barbarous and savage. The division seemed entirely satisfactory, and we never doubted our ability to assign any human being to one of these three classes the moment we laid eyes on him. The savage was supposed to care for nothing but eating and sleeping, the civilized man cared for something besides eating and sleeping, and the barbarian was midway between these. Too bad that so simple an arrangement should ever need revision! Since then, however, facts have become known in regard to savages, barbarians, and civilized men, too, which tend to obliterate the lines of division that seemed so clear cut.

To-day these terms continue to be used from mere force of habit, just as naturalists continue to talk about species and genera, when they know very well that there is not and cannot be any sharp dividing line between any two species. We now know that there is hardly a feature in civilized life that is not present, at least in a rudimentary form, among the so-called savages, while, on the other hand, we have come to the conclusion that there are hosts of human beings able to read and write and to count to a million, having the ballot, using the telephone and holding their possessions between thumb and forefinger in a bankbook, who nevertheless are not civilized at all, but merely domesticated, and who, if an epidemic were to carry off all the real active brains of civilization, would instantly relapse into the Stone Age, if they did not die of starvation.

That there could not be any human beings who think of nothing but eating and sleeping, might have been evident from the first, for the higher animals have got beyond that stage. All that was needed was to listen to the song of a canary bird. Were there any representatives of the Pithecanthropus of Java still in existence, we should doubtless find them using some kind of decoration, having some traditions in set form (the beginning of literature) and some regularly recurring intonations or rhythms repeated for the sake of pleasing the ear (the beginning of music). In point of fact the lowest human beings now in existence represent an immense advance over the earliest that might claim the name human. Nine times, most likely, has nature wiped the lower races off the earth to make room for some improved breed, the inferior ones being either exterminated or absorbed as the superior ones spread by virtue of their slightly better brains. And thus it will probably go on indefinitely, and it may be that we have no business to try to stop it.

A glance at the coat of the Smith Sound Eskimo suffices to show that we are dealing with a race which does care for something besides eating and sleeping. Two-thirds of the seams on this coat are solely for the sake of ornamentation: the *saglorencng* on the man's back, the *igia* down his throat, the *nunga* across his head, the *tunuka* on the woman's back, the *manuka* under her chin, the *crsi* below the breasts, the *tungawing* around the lower border—all decidedly handsome patterns, even to the civilized eye. Their tools, houses and tents all bear the same imprint of long development.

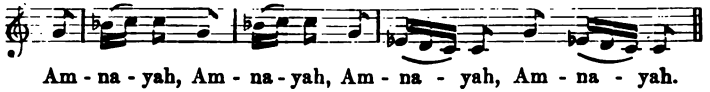
I am not aware that any record has yet been made of their music, except their choral song, the commonest of all, which inevitably attracts the notice of any one who stays with them more than a day or two. The Eskimos of Danish Greenland, indeed, are known to possess a keen musical ear and admirable voices, but the songs they now sing are said to be all of Danish origin. The first mention of a song among the tribe to the north of Cape York occurs in the report of Sir John Ross, who discovered them in 1818:

"We then tried to discover if they had among them any

amusements, such as music or dancing, and, after some difficulty, succeeded in persuading two of the strangers, who, we were made to understand, were nephews of Ervik, to give us a specimen of their dancing. One of them accordingly began immediately to distort his face, and turn up his eyes so exactly resembling the appearance of a person in a fit of epilepsy, that we were convinced this accident had happened, and I was about to call for assistance from the surgeon. I was, however, soon undeceived, as he immediately proceeded to execute, in succession, a variety of extraordinary gestures and attitudes, accompanied by the most hideous distortions of countenance. Like the similar amusements of very different climates, these contained the indecent allusions which are well known to form an essential feature in the dances of many nations, in other respects far advanced in civilization. The body was generally in a stooping posture and the hands resting on the knees. After a few minutes the performer began to sing 'Amnah ajah,' and in a very short time the second performer, who had been looking at the other in silence, began, as if inspired, to distort his face, and imitate the indelicate attitudes of the first, and soon after to sing as chorus, "Hejaw, hejaw." After this had continued with increasing energy for ten minutes, the tune was suddenly changed to a shrill note, in which the words "Weehee, wehee," were uttered with great rapidity. They then approached each other, by slipping their feet forward, grinning, and in great agitation, until their noses touched, when a savage laugh ended this extraordinary performance."

Kane, who visited the tribe in 1853-55, describes a similar song:

"They sang 'Amna Ayah' for us, their rude monotonous song, till our ears cracked with the discord; and improvised a special eulogistic chant, which they repeated over

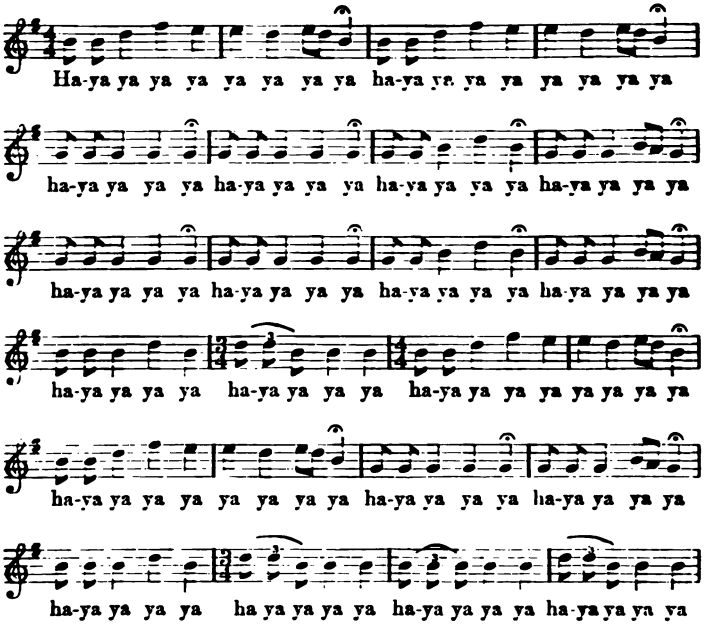


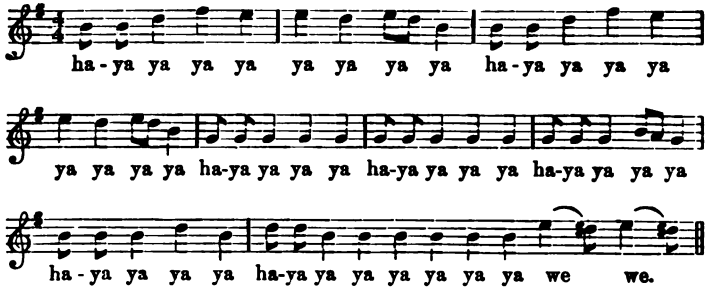
and over again with laughable gravity of utterance, subsiding always into the refrain of "Nalegak! nalegak! nalegak-soak!" ("Captain! captain! great captain!")

THE WHITE WORLD

Wishing to hear this song from aboriginal lips, I sang it as best I could from memory to four young men, Sipsu, Uzaka, Piwatu and Aweta, who visited our station, Fort Magnesia, on January 26, 1900. Sipsu, the liveliest among them, on being asked to repeat it, at once looked around for a small board and a stick. These secured, he arranged the party in two pairs, himself and Aweta in front, Piwatu and Uzaka behind them. Taking the board in his left hand he struck it from below with the stick (held in the right hand) thus:

After the first few taps he began to sway from side to side, with body bent forward and eyes closed, and to sing approximately as follows:





The others accompanied in unison, but with lower voices. At the end, Sipsu's partner, Aweta, leaned over to Sipsu, and, holding a short stick vertically between the fingers of his two hands, close to Sipsu's head, described a circle with the upper end of the stick, while both shouted "We! we!" in a pitch several notes higher than the last of the song, and ending in a burst of laughter. Sipsu and Aweta then changed places, the latter took the board and became leader. Next Piwatu and Uzaka took their turns, and the performance might have continued indefinitely if something (I think it was the call to dinner) had not stopped it.

What we saw and heard was only a partial exhibit. In the real performance no board is used, but a drum, called kedlaun, about a foot long and five or six inches wide. Over a rim (*katugwia*) of walrus rib cut thin, boiled and bent into an ellipse, is stretched a drumskin (*isia*) made of the membrane (*mapsa*) surrounding the spleen of the walrus, or in default of this, of seal intestine sewed together. The handle (*pablua*) is made of bone or ivory. Along the outer edge of the rim is a groove (*kitarota*) in which rests a thin sealskin line (*isidiuta*) holding the drumskin tight. Above this groove, all along the circumference, a number of hemispherical pits (*imihsauserwia*) are scooped out, which, the natives suppose, either strengthen or clarify the sound. The drumstick (*katua*) is made of walrus rib. This is the only musical instrument in use in that tribe so far as I know. It is quite effective as an accompaniment to the song.

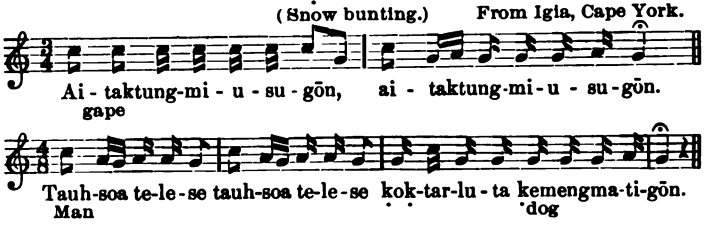
When sung in chorus by six or eight voices this song is decidedly impressive. The sight of the leader swaying

to and fro, flinging his long black hair sideways at each movement, his eyes closed and his face tense with excitement, of course greatly adds to the effect. The way the singers manage to keep exact time without a division of the melody into measures of equal length is astonishing. Of course, a similar phenomenon may be observed in the Gregorian chant of the Catholic churches. Sipsu explained to us that in the regular performance each one has to take the leading part a definite number of times. These numbers are the same for the two men in each pair, but differ with the different pairs. So far as I could judge, all sing the same air at one performance, though when they sing alone there are almost as many variations of it as there are individuals, each one having his own, which seems to be recognized as his property. When a great number of them get together the performance continues for hours, until the exigencies of business put an end to pleasure. In the movements of the leaders I could never detect anything of the nature spoken of by Ross. This song is the natives' great refuge from ennui. When stormbound in a snow hut, with nothing to do, or when whittling away at a whip or a bit of ivory, they invariably begin crooning "Haya ya ya ya" to themselves in a low tone, keeping it up for hours.

Evidently this song is quite different from that recorded by Kane, yet the correctness of the latter is not to be doubted, in view of the close agreement of the words with those recorded by Ross. I repeated Kane's version to many natives, but none recognized it, except Utuniahsoa, a man of about sixty, who said that he had heard it in his youth, but that it had been forgotten for many years.

I had thus settled down in the belief that the natives had only one song, when one day at Cape York, sitting in my tent, while two young men, Publa and Igia, were sitting outside, I heard the latter softly humming a tune. Thinking it a white man's air, such as I had heard many natives humming ("Ta-ra-ra Boom Dee-ay!" "Kitty, Kitty, Ki' Me O," "A Hot Time," etc.), I asked him to repeat it. He did so with great alacrity, but on being asked from what white man he had learned it, he replied, "Kabluna naga, Inuin kisene" ("White men not, Eskimos rather"), adding that it was the song of the *kopainu* (snow-bunting).

Kopainu.



Here was a revelation! Having written down air and words, I repeated the song, to the great astonishment of the young men, who expressed the belief that I must be an Eskimo. I asked the meaning of the words, but with the exception of the word *aitakto*, which he said meant " to open one's mouth," he declared that he did not know, that the Eskimos did not talk that way now, but that it was the language of their ancestors. Seeing my interest in the matter, he presently went through his entire repertoire, and thus I obtained the songs of the burgomaster (glaucous) gull, raven, hare, fox, long tailed jaeger (boatswain gull) and gerfalcon. Meantime Publa sat a dumb spectator, and, on being urged to sing, replied, " Nadluiga " (" I don't know "): I found out afterward that there are great differences among individuals in regard to musical gifts, though there is probably none without a musical ear. Igia was one of the most songful spirits in the tribe, and, with his nearly white complexion and unusually regular features, would make a very appropriate figure as the bard of a nation. Unfortunately, he verified the common experience that the cult of the muses is not conducive to worldly prosperity. A desperate attack of rheumatism had reduced him to a skeleton; the clothes he wore, a small broken sledge and a little wooden box containing a few trifles obtained from the white men, constituted the sum of his worldly possessions. Like most young bards, he was perpetually sighing for connubial bliss, but in his destitute condition had very little chance of attaining his desire. I am glad to add that I was able, on parting, to give him enough wood to build the frame of a kayak, while

the loan of my gun had enabled him to get enough sealskins to form the cover, so that he is now at least thirty percent richer and perhaps need not become the Keats of his tribe.

When the other Eskimos found that songs were in demand, they, too, came forward with contributions, and pretty soon I had exhausted the repertoire of the Cape York colony. At any rate, though I repeatedly went over the remaining list of animals known to them (bear, walrus, seal, muskox, ptarmigan, etc.), in each case they replied, "He has no song." However, having returned to our station, Fort Magnesia, near Cape Sabine, and there meeting a number of other Eskimos, I found that their musical treasures were more extensive. Though not all the natives were able to sing all the songs, they all recognized them. It was a common diversion for me to stand before a group of them, sing a song out of my notebook and then ask them what it was. Not one of them ever failed to name the animal to which the song was attributed. They told me repeatedly that this was the first time a white man had taken notice of their songs, and been able to repeat them. Awia (or Niwikengwa) wanted to see my tongue, thinking there must be something peculiar about it to enable me to sing like them. She asked whether my mother had not been an Eskimo.

My authorities at Cape York, besides Igia, were Angutibluahsu, a stalwart man of thirty; Igiengwa, his stepson, a very bright boy of fourteen; Publa's sister, Kuyaping, a timid girl of fourteen; Atuhsu, a woman of perhaps seventy. At Fort Magnesia my authorities were Awia (Niwikengwa), a very intelligent woman of about forty, wife of Akomadingwa; her son, Angudlu, a man of about twenty-five, one of the bravest and most persevering hunters of the tribe; her daughter, Akatengwa, a girl of eleven, who promises to surpass her mother in intelligence, though not in industry; Kawiengwa, a rather reticent fellow of about eighteen; Utuniahsoa, a famous bear hunter and traveller of about sixty, and his daughter, Anarwi, wife of Aseyu, a couple so intelligent and well mannered that nature actually seems to have been cruel in endowing them with such brains and then thrusting them into a corner of the globe where they have so little use for them.

The additional songs I obtained not by direct questioning but by accidentally overhearing them and then making them repeat. I would note down the first phrase, and ask them to sing again. They would start from the beginning, and when they had finished the next phrase I would stop them and write down some four or six additional notes. To start in the middle was generally beyond their power. For this reason I was never able to record the long choral song "Haya ya ya" completely, for having to go back to the beginning after every four or six or eight notes written down, they got confused and ran off into protean variations. This song, for that matter, has already been recorded by means of the graphophone.

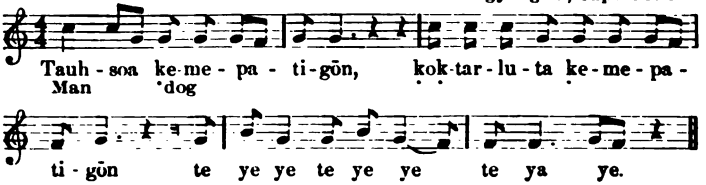
All the songs, except the choral one, were sung in a curiously low tone, inaudible thirty feet away. If I sang them louder than that, they would tell me, "That is not the way the Eskimo sing." It will be readily understood that the ordinary musical notation does not give a perfectly lifelike picture of such music. In some cases, indeed, it is accurate enough; in others, the notes indicate merely the culminating points of a wave line. This, of course, is true of nearly all singing unmodified by technical training. The Eskimo songs were actually easier to imitate and record than those of some of the Newfoundland sailors on board the Windward. The "goût du terroir" cannot be conveyed by conventional symbols. The airs have here been divided into bars, where the measure was conspicuous; in other cases no bars are used, although some kind of measure was distinctly noticeable.

The results of two years' collection were thirty-eight songs. It is probable that the number might be at least doubled under more favorable circumstances. For this purpose, one would have to reside near one of their villages continuously for at least two years, and question every individual in the tribe, especially the old people. As before noted, the words of the songs belong mostly to an archaic language, so that the Eskimo themselves are generally unable to understand them. Such meanings as could be made out are noted beneath the original.

Kopainu.

(Snow bunting.)

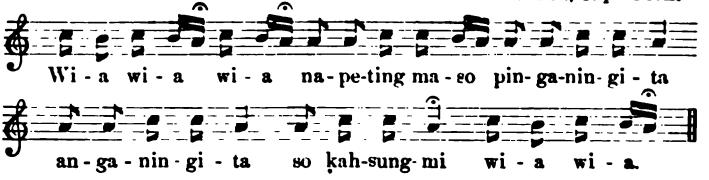
From Igyengwa, Cape York.



Kopainu,

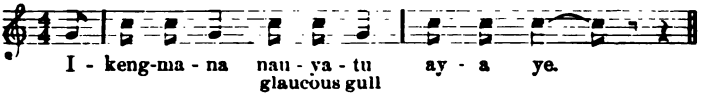
(Snow bunting.)

From Atuhsu, Cape York.



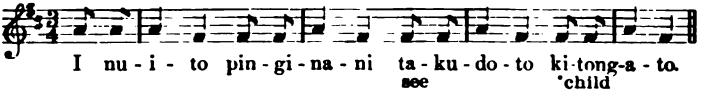
Akpadliahsu.

(Dovekie.) From Igia, Cape York.



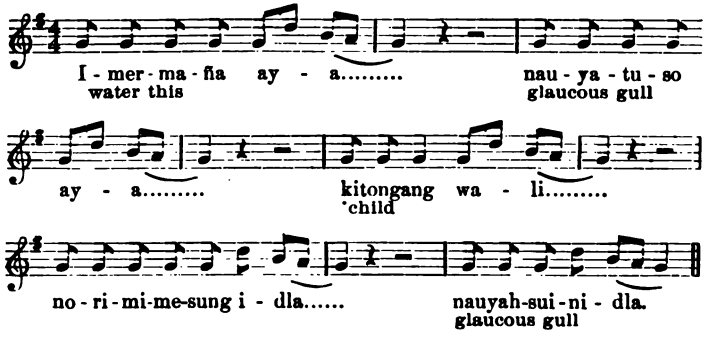
Akpadliahsu.

(Dovekie.) From Kawiengwa.



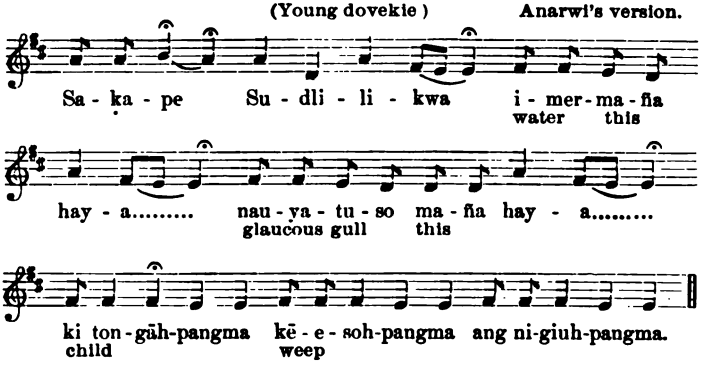
Akpadlia.

(Young dovekie.) Awia's version.



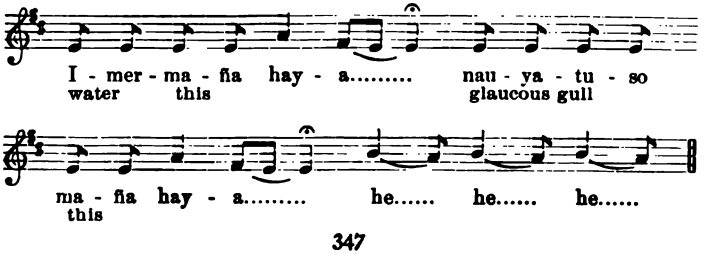
Akpadlia,

(Young dovekie.) Anarwi's version.



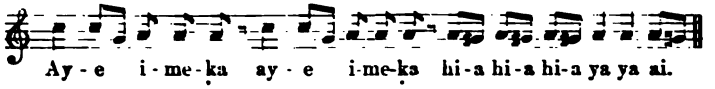
Akpadlia.

(Young dovekie.) Adingnedlu's version.



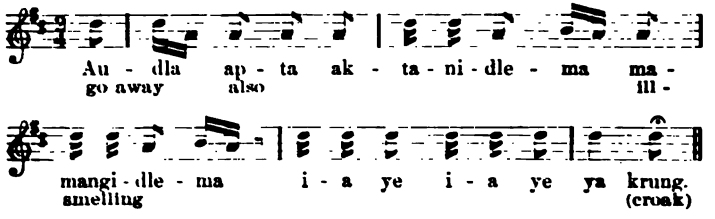
Tudlua,

(Raven.) From Igia, Cape York.



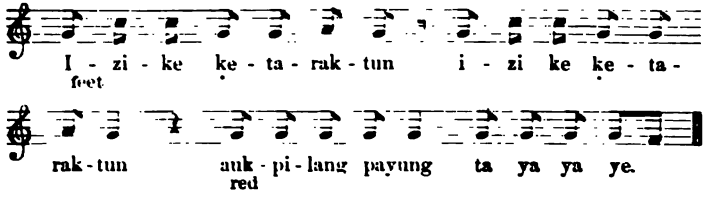
Tudlua,

(Raven.) From Kawlengwa.



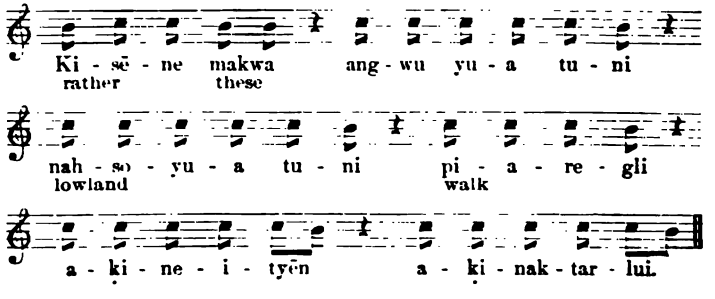
Nauya,

(Glaucous gulk) From Igia, Cape York.



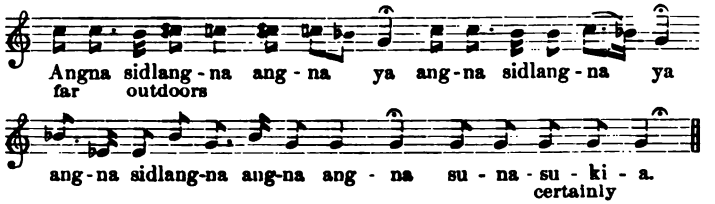
Kihsawiahsu,

(Ger falcon.) From Igia, Cape York.



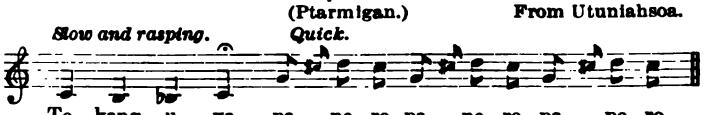
Isunga,

(Long-tailed Jaeger gull.) From Igia, Cape York.



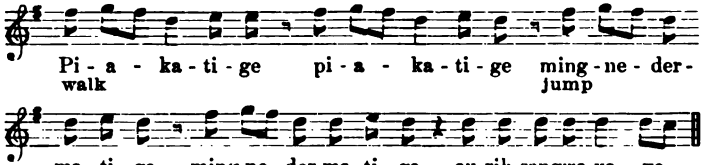
Akiseng,

(Ptarmigan.) From Utuniahsoa.



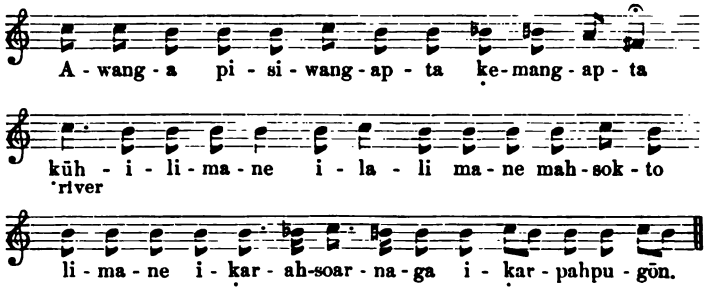
Toryenya,

(Fox.) From Igia, Cape York.



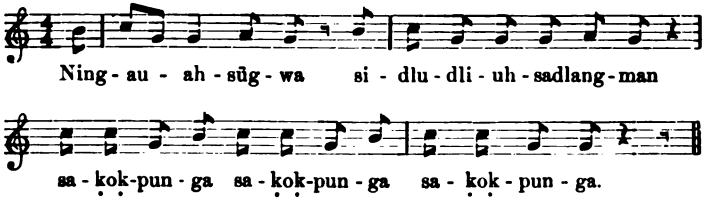
Ukadleng,

(Hare.) From Igia, Cape York.



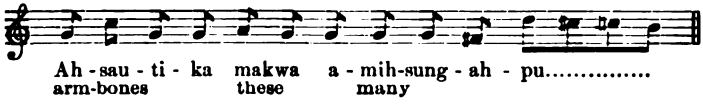
Nanu,

(Bear.) From Utuniahsoa.

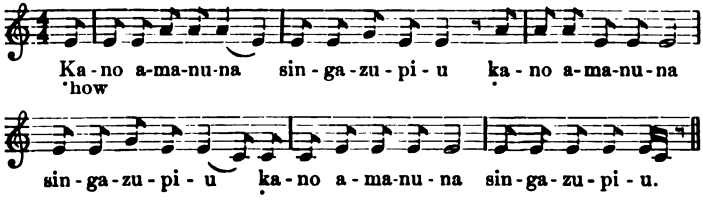


Nanu,

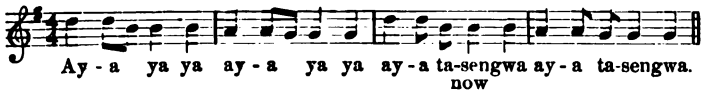
(Bear.) From Utuniahsoa.



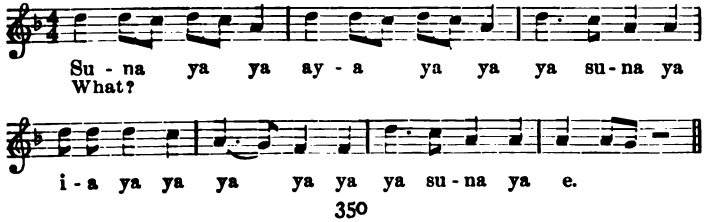
From Igyengwa, Cape York.



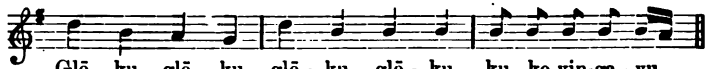
From Atuhsu, Cape York.



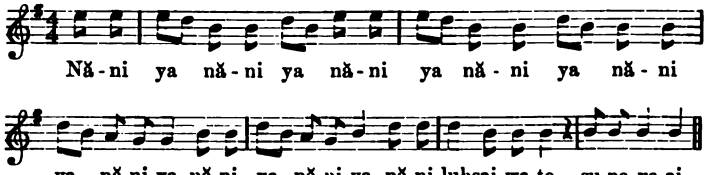
From Awia.



From Kuyaping, Cape York.



From Akatengwa.



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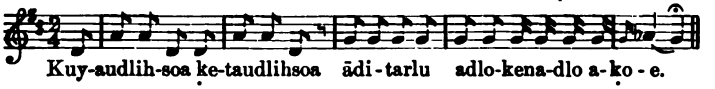

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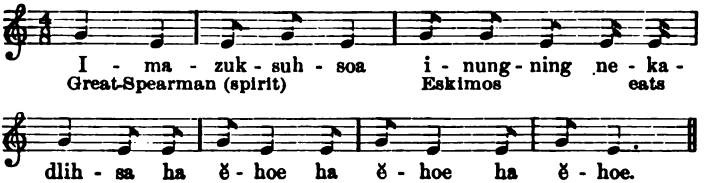
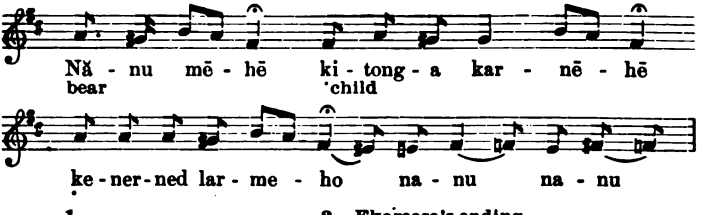


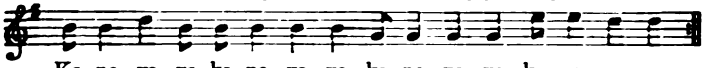
From Akatengwa.



THE WHITE WORLD

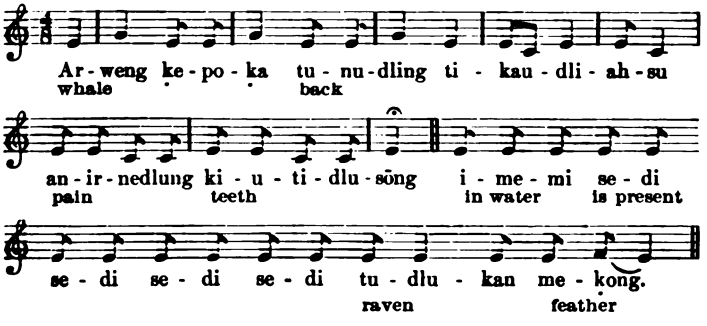
From Utuniahsoa.

Sung by Idlengwa, an old man, many years ago.



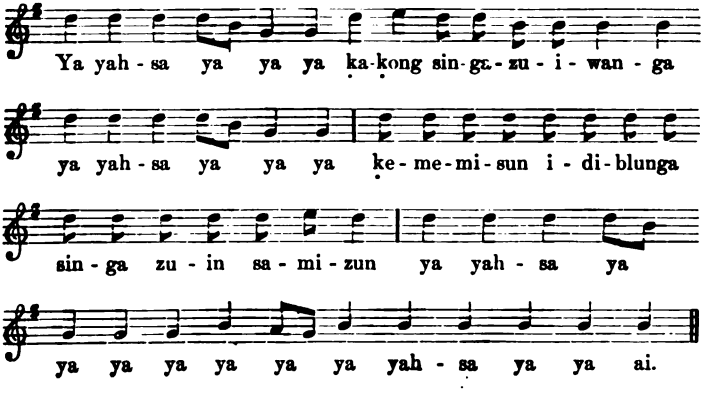
From Akatengwa.

Sung by Apidla, son of Amangwa.



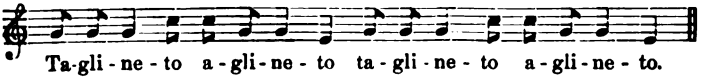
From Akatengwa.

Sung by Apidla, son of Amangwa.



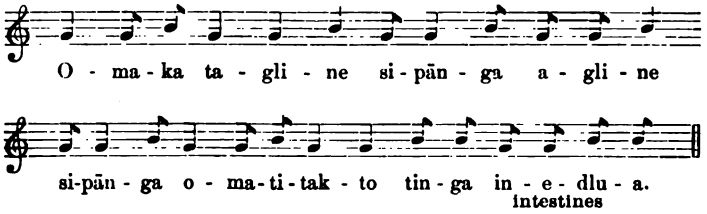
From Anarwi.

Mother sings to child.



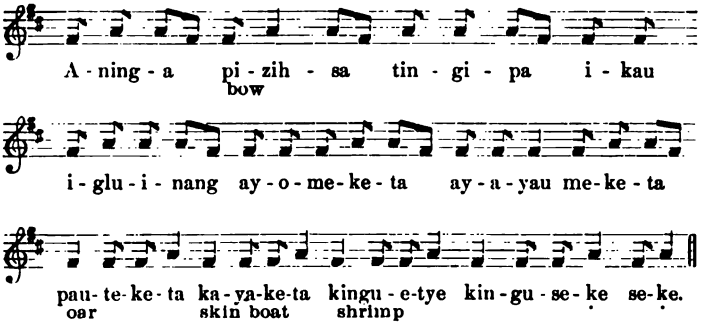
From Anarwi.

Child cries to mother.

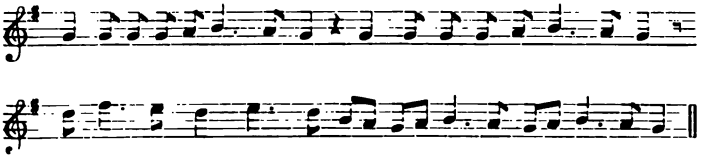


From Angudlu.

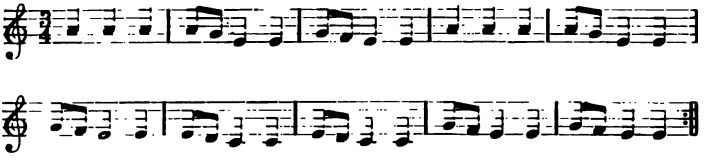
Brought from Baffin Land some thirty years ago.



Words indistinguishable. From Angutibluahsu, Cape York.



From Atuhsu, Cape York.



From Akatengwa, who learned it from Alekasingwa.

4 times. *1 time, then repeat No. 1.*

No, 1. No. 2.

From Akatengwa.

Used in counting—atauseng, mahlu, pingazun, sisamen, tadlimen, etc

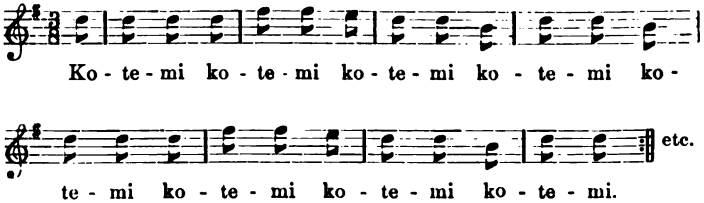
From Akatengwa.

Words improvised, air probably traditional.

Audlakto tō u - mi-ah-so - a..... a-wa-ni a-wa-ni a-wa-ni.
Away goes the ship over there

From Akatengwa.

Air probably traditional. Words an imitation of a well-known English exclamation.



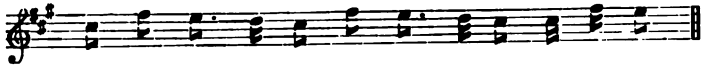
Ko - te - mi ko - te - mi ko - te - mi ko - te - mi ko -

te - mi ko - te - mi ko - te - mi ko - te - mi. etc.

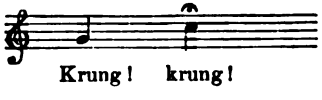
The value of the letters in the spelling here adopted is the same as in German, with the following exceptions. W sounds nearly as in English; s is always surd (as in miss) but represents a sound made by thrusting the tip of the tongue down and forward and arching its back against the hard palate; z is the same sound but sonant (that is, bearing the same relation to Eskimo s that English z does to English s); ķ is pronounced farther back than k; ġ is like Dutch g; h like German ch; r is the Par-

isian r grasseyé; e is like German ä, French ê; ng at the end of words is almost inaudible, being identical with the French n in on. A very peculiar sound is that of ṙ. In pronouncing the English r, the tip of the tongue is put close against the hard palate; for German r the position is a little more forward. If you fix the anterior edge of the tongue against the lower incisors, and, with the tongue quite lax, try to pronounce r (either English or German), the result will be the Eskimo ṙ. Vowels with dash over them are long (ā ē ɛ̄ ī ō ū); vowels with curve over them are short (ă ĕ ɛ̆ ĭ ŏ ŭ). Consonants with dash over or under them (m̄ n̄ t̲) are sustained, like Italian double consonants, as in dotto, Giovanni, there being a perceptible pause between the "onset" and "offset" of the consonant.

It is not to be supposed that these airs resemble the voices of the animals to which they are attributed. This is not at all the case. The snow bunting's real song, for example, is as follows:



The raven, besides his ordinary croak, has a rather musical call, which, according to the Eskimos, he uses only in the pairing season:



The second note especially has a remarkably pleasant metallic ring, dying away gradually like the sound of a tuning fork. The boy Akeo imitated it to perfection.

The words of the songs, so far as could be learned, are intended to express the sentiments which the animals may be supposed to entertain in accordance with the vicissitudes of their lives. Thus, the snow bunting's song, I was told, is the bird's lament at the snares which the Eskimo children set for him. The dovekie, in its songs, seems to be greatly exercised about the nauya or glaucous (burgomaster) gull, and with very good reason, as that fierce

creature spends the summer in swallowing dovekies, old and young.

It is difficult to describe my astonishment on finding that this little tribe of supposed "savages," often (though quite erroneously) classed among the lowest of mankind, living only 770 to 980 miles from the Pole (further north than any other human beings), actually possess two languages, one for every-day use, the other, an archaic one, for the "higher life" of poetry and music! It is altogether probable that the use of this archaic language is much more extensive than I was able to ascertain, extending, no doubt, to their religious incantations, which sometimes last an hour. Could these be carefully studied, what a mine of information they might disclose in regard to the mental life and perhaps also the history of this most interesting tribe! Apparently the archaic language does not differ so greatly from the current speech but that it might be readily interpreted, with the aid, perhaps, of other Eskimo dialects. For my part I could hardly wish for a pleasanter occupation.

A famous poet declares his intention to sing the songs of his native land

> "Till thy conquerors themselves, as they rivet thy chains,
> Shall pause at the song of their captive and weep."

Whether the Eskimo songs here recorded will have the physiological effect of stimulating the activity of the lachrymal glands it would be difficult to say; but no one can help feeling more kindly toward these remote cousins of ours on learning that in the most forbidding circumstances imaginable, amid their daily struggle to escape the clutch of famine, the first moment of leisure finds them bursting into melody. To any one desirous of lightening their lot, it will be an added pleasure to know that any increase of leisure which may be procured for them is likely to result in an increased cultivation of the "higher life." This sort of hobby would not be very expensive. The annual cost of many a single household, nay of a single span of horses, in the United States, is greater than would suffice to place the entire tribe of 250 human beings in comfort such as they have never known.

PERILS OF POLAR WHALING

CAPTAIN BRADLEY S. OSBON.

Bradley S. Osbon was born in Rye, N. Y., Aug., 1828. Has made two voyages to the Arctic Ocean and served in a whaler in extended trip to Antarctic. Has served in the United States (under Farragut) Chinese, Argentine, Mexican navies. Received many decorations for gallantry.

CAPTAIN BRADLEY S. OSBON

PERILS OF POLAR WHALING

By CAPTAIN BRADLEY S. OSBON

WE had spent nearly a month at Hobart Town, in Van Diemen's Land "recruiting ship," that is, taking in water, wood and provisions, and giving the boys a chance to stretch their legs, after being confined on shipboard for nearly six months. Then we weighed anchor for the Antarctic Ocean, which was reported to be alive with a new species of whale, expecting to return to port in perhaps less than three months, "chock a block" with oil and bone, to refit for our homeward voyage. From master to cook, no one on board had ever been in these waters, and but little was known of them by navigators or geographers. Certainly the whalemen were as ignorant of the ground to be covered as a Fijian is of an ice trust. But in those days it was the whalemen who were the explorers, the missionaries, the civilizers of the Pacific Ocean islands, and the hydrographers of the almost unknown seas.

The "Junior" was almost a new ship, having been entirely rebuilt before starting on this voyage, and was as stout as live oak, locust treenails, and copper bolts could make her. She was provisioned for a four years' cruise, and was commanded by a splendid navigator and kind-hearted gentleman; with three excellent mates, four good boat steerers, a cooper, a carpenter, a blacksmith, and as sturdy a crew as ever hoisted a topsail or manned a whale-boat. In fact, if ever any ship with its crew was fitted for such a cruise it was the "Junior."

It was not long after we left Van Diemen's Land, and pointed our prow southward, that we fell in with the proverbial Antarctic weather, and the conflicting currents

with which those waters abound. The farther south we penetrated, the worse these conditions became. Baffling winds prevailed, followed by severe gales, fast and furious. Sleet, snow, rain and hail came from all quarters of the compass, and the sun scarcely deigned to show its face for days at a time. The weather was penetratingly cold, the sea confused, and we began to realize that no one could tell just where we were. Dead reckoning was indeed a broken reed to lean upon. Soundings were of no use, as we had no charts upon which to plot our position. So far as worry was concerned, my impression is, those in the after end of the boat had the worst of it, as we in the forecastle were not responsible for the safety of the ship, nor cognizant of the danger threatening it and our precious lives. After we had been out from the land a month, perhaps, we began to see whales, but they were the common, useless, much-despised "sulphur bottoms," large in size, and swift in their movements, but paying no attention to our presence in their cruising grounds. Still, we steered clear of them, lest at some time we might provoke them to give us a slap with their ponderous flukes, which they could wield with a tremendous power, sufficient to crush our frail craft as if it were an egg-shell. It was tantalizing to see anything of the species whale, and not be able to lower away and secure it. Day after day passed with these big fish tempting us, until at last our captain resolved to attempt to kill one of the fellows. His boat was prepared by putting in two extra tubs of whale line, making four tubs in all, and with a picked boats' crew, the main topsail was laid to the mast, and the boat lowered away. All hands gathered at the starboard waist rail to see the sport, for we knew that a "sulphur bottom" was just the fish to furnish it. There was no trouble in approaching the monster, which was at least one hundred and twenty-five feet long and he lay almost motionless on the surface of the water.

The boat steerer stood up, and just as the boat got within three or four fathoms of the whale, he drove both irons chock-home in the fish. The whale quivered, and then giving a start, threw up his flukes and took a header for the bottom —if there was any bottom of the ocean at that spot. We had

peaked our oars and had faced forward to grab the line and check him. That line went out quicker than a wink. It was buz-z-z-z-z around the logger head which was smoking like a tar pot on fire, and before we could realize what had happened, the four tubs of whale line, 600 fathoms, or 3600 feet, had disappeared forever. The "old man" stood paralyzed at the outgo, and at last, recovering himself, said: "Damn the whale, go ahead." I have often wondered if Farragut did not hear of that saying and substitute the word "torpedo" for whale in his memorable utterance at Mobile Bay. The old man grieved over the loss of that whale line, and out of spite one day, we lowered a boat and stole a calf whale from its mother's side, killed and hoisted it bodily on board ship. We tried it out, the net products being five barrels of sulphur bottom whale oil, which we burned in our lamps, and a nice mess of whale meat.

That ended our whaling in the Antarctic, but not our miseries. For nearly four months we battled with storm, field-floe and berg ice, having many narrow escapes, and when we finally emerged from the frigidity, mingled with the fogs, which caused much suffering, it was unanimously resolved that we never would spend another summer in the Antarctic Ocean.

We had spent a summer in the Antarctic, and were full of yarns to spin to our fleet-mates whom we had met on our passage north, over the sperm whale grounds of the Pacific Ocean and among the groups of islands which dot its chart, little dreaming that we were actually pointing our prow for the Arctic Ocean; but it was to come to pass. We fell in with a ship one day, the crew of which brought us the news of the discovery of the celebrated bowhead whale of the 40's. No sooner had we learned the details than we spread sail to reach the Bering Sea gates to the North Pole, and enter the domains of the new whale, said to "stow down" anywhere from three hundred to five hundred barrels. Night and day we carried sail like an Indiaman, to reach the goal, and, with a speedy ship, we turned up at the Fox Islands in May.

As soon as the ice permitted, we entered the precincts where we were to realize our hopes for a "full ship" of oil

and bone. The whales were of very large size; one that we captured stewing down three hundred and sixty-five barrels, and furnishing over three thousand pounds of bone.

We captured over three thousand barrels of oil with its proportion of whalebone, and had all sorts of experiences with Eskimo, bears, seals, fishes and birds, on water and on land. We had fine weather, ran no special risks, and enjoyed ourselves heartily; but all the same, I should not select that region for a steady summer resort.

"THERE SHE BLOWS"

I was a party to a bathing adventure, the recital of which may be interesting. We had lowered all four boats in pursuit of three whales which were circulating near the ship. My boat inopportunely got in the way of a bull whale and he "spanked" the boat into smithereens with his huge tail. Tom Cole and myself, each with an oar in hand, went over the port gunwhale into the sea, while the rest of the crew went off on the other side, and, fortunately, were quickly rescued by the other boats. Poor Tom and I were within the charmed circle, made by the three whales, for they were swimming around in a ring, into which not one of the boats dared to go, lest it should be "spanked." We were both good swimmers; besides we had two oars to support us, so we had no fear of drowning. The crews of the three boats were far more exercised for our safety than we were. We supposed the whales would soon get tired of their ring work and move off, or have a fight, or do something to release us from our watery prison—but no, they kept it up, never minding us a bit.

We were the recipients of many words of encouragement from our shipmates, who stood ready to rescue us as soon as the whales gave them an opportunity. Finally, we both felt that some chewing tobacco would be a comfort, and we hailed the outsiders for a supply; in a minute the air was full of bits of the weed in plug form, of which we secured several samples. As Tom was a colored boy with curly hair, I was obliged to carry our supply tied up in my flowing locks to keep it out of the wet.

After our lunch of tobacco, we quietly rested on our oars. When we had been nearly three hours in the water, the two bull whales resolved to have a " scrap," and as they broke the circle, the second mate's boat rushed in, picked us up, and started with us for the ship. We were comfortable while in the water, but half-frozen when we were in the boat. After a good rubbing down, a drink of hot brandy, and a night's sleep, Tom and I were none the worse for our bath in the Arctic Ocean.

The following year found me again in the Arctic Ocean on board of the brig " Swallow," in the capacity of supercargo and ice pilot. I subsequently learned that this vessel bore a history, and from all I could ascertain, she had been an opium smuggler, and it was vaguely hinted that she was no better than a pirate, should opportunity present itself to the captain. All the same, she was a smart, swift craft, carrying a crew of about fifty men, and mounting eight guns in broadside, and a pivot gun amidship. She was well handled, and was a match for any vessel of her tons and guns. We had only one little " event " on the way north, when the vessel was enriched with some $20,000 in Mexican silver dollars, four or five hundred pounds of opium, and a good many thousand Manila cigars. If there are any Chinamen living who participated in this event I will leave them to tell the story.

However, without any extraordinary happenings, the " Swallow " entered the Arctic Ocean early in June, and endeavored, as far as possible, to keep out of sight of the whalemen, who were now flocking to these waters; and as they were busy, they took no pains to go in quest of us. My previous visit had brought me in touch with some of the natives, and it was not long before they understood

the "Swallow" was not in those waters to catch whales, but to buy furs and walrus ivory, a trade that was controlled and watched over by Russian authorities, who at times had one or two cruisers in those waters, to prevent poachers and traders from carrying off these valuable goods. We made considerable headway in our trading, but in the hope of getting a valuable lot of furs that we had sent some natives to secure, we held on too long and were nipped by the ice, and despite all our efforts to get out, we were obliged to spend the winter in the Arctic.

After the captain found that we were destined to pass several months in our icy house, he seemed to lose all his snap, and from the closest mouthed man of all on board, to me especially, he became as a child in my hands, and in my capacity as ice pilot, I virtually took command of the vessel. After sending down the light spars and lowering the top masts, I directed nearly all the provisions to be taken on shore and safely stored, so that in the event of the vessel being crushed by ice, we might have food until the whaling fleet came early next summer.

Fortunately, our anchorage was near the spot where the whaleship "Richmond," of Cold Spring, New York, had been wrecked the year before, so that her timbers gave us ample firewood for the winter. We lived a quiet, uneventful life during this term of our imprisonment, with about a dozen natives in our company. Occasionally we had fresh bear meat, some fish, and upon the whole fared well.

It was toward the end of May that with the spars all "a taunto," the remainder of the provisions on board, and a valuable lot of furs and several tons of walrus tusks in the hold, we bade farewell to our dusky friends, and headed the little brig to the southward.

We were very fortunate in getting through the ice without many delays and were speeding south with a favoring breeze, when the lookout sang out "Sail Ho!" which was a rarity that brought every one to the deck.

It was not long before we made her out to be a bark-rigged Russian cruiser, a trifle larger in tonnage than the brig. As soon as he discovered us, he clapped on all drawing canvas and stood for us. We were soon given to understand by our captain that the Russian could not have

our cargo without a fight, and the magazine was opened and guns were double shotted. Cutlasses and pistols were served out, and everything gotten ready for trouble.

Whether our captain feared the Russian could overpower him or not, I never knew, but all at once the orders were given to set the studding sails, and as the brig paid off to

BOATING AMID ICE FLOES

a quartering wind, up went the kites, and she soon was bowling off 11 knots. The cruiser opened fire on us with bow guns but the shot fell wide of us. We shifted one of our broadside guns aft, and returned the fire, but with as little effect as had that of our pursuer.

The Russian spread every available stitch of canvas but we were dropping him rapidly astern. The race continued on the same course until about 8 o'clock that night, when we took in all light sails and hauled the brig up to the wind, standing to the westward, until about daylight, when we shaped our course to pass out behind the islands and into neutral waters.

We saw no more of the Russian, although we kept up a vigilant watch for him, believing that he would attempt to capture us wherever he found us. A few weeks after leaving our winter quarters in the Arctic, we arrived at Honolulu, where I was paid off and left the "Swallow."

She sailed from there for Hongkong, which was her trading headquarters, but no tidings were ever received from her. She probably was lost on some uncharted rock, or went down in a storm. With her ended my polar voyages, but the memory of them is ever cherished as the most valued of a long sea life—one full of adventures and full of pleasures.

AMERICA'S
FIRST POLAR EXPEDITION

ALBERT WHITE VORSE.

Albert White Vorse was born in Littleton, Mass., Aug., 1866. In the summer of 1892 Mr. Vorse accompanied the Peary Relief Expedition to Greenland, as correspondent of the press. Is the writer of many short stories, dealing with the Arctic regions. Editor, critic and literary adviser.

ALBERT WHITE VORSE

AMERICA'S FIRST POLAR EXPEDITION

By ALBERT WHITE VORSE

BY THE present generation of grandfathers the first important exploring expedition sent forth by the United States is clearly remembered. In their prime it was a public scandal, and to every loyal American, the great Wilkes-Ross controversy which followed it, was a private issue. Hints of the controversy have descended to sons and grandsons; so also have records setting forth the fine achievements of the expedition; but the story of its organization is stowed away in the obscure memory cells of men far beyond their youth, and buried in the dusk of libraries. For the sake of the illustration it affords of the bearing of petty jealousies upon great enterprises, this story is perhaps worthy to be pieced together.

The expedition was organized in the days when there was still the fascination of mystery about ocean voyages. The maps of continents still showed blank spaces. The chart of the South Sea was not dotted with islands. Merchant ships sailed under instructions, not only to trade in known lands, but also to discover new ones. Governments still dispatched fleets to rove about the ocean, merely to satisfy the white man's curiosity concerning the world upon which he lived. This was little more than half a century ago. One of the objects of the United States Exploring Expedition which sailed in 1838, was to determine accurately the longitude of Rio de Janeiro.

With the enthusiasm of discovery, the citizens of the United States were highly charged. Following in the course of Captain Edmund Fanning—he of "Fanning's Voyages," a popular book in the time when narratives of sea travel were sought out by other readers than school

boys—a fleet of vessels from Nantucket, New Bedford, New York, and other American seaports, cruised to the whaling grounds south of Cape Horn, or took seals at Massafuero Island, carried the furs to China, bartered for China goods, and brought home cargoes that made owners rub their hands with pleasure. Fifty thousand dollars was not an uncommon profit for such a voyage, and in those days fifty thousand dollars was a good, sound bit of capital.

The South Sea industry prospered. In the second decade of this century, 132,000 tons of shipping and 10,000 men were occupied in this profitable trade. Nor was the object of these seamen altogether commercial. The spirit of exploration, pure and simple, was held in higher esteem than it is to-day. Captain Fanning could urge his fellow-citizens to attempt that "laudable enterprise" the discovery of the South Pole, so that "other nations might not snatch the credit and honor away from our own," without fear of reading in his newspaper, the question, "What is the discovery of the South Pole worth?"

Voyages to the ice-fields and among the unknown rocks of the Antarctic were dangerous, particularly in ships that to-day would be deemed hardly fit for the deep seas. Many of the craft of the sealers displaced but forty or fifty tons. Several such vessels came to grief upon strange reefs, and in the first decade of the century there arose a sentiment that the United States ought to look to the interests of its southern trade. It was almost twenty years before the South Sea merchants, influential as they were, could bring Congress to take this view of the matter, but at length, in 1828, the General Assembly of New York, the mayor and prominent citizens of Charleston, South Carolina, the governor and prominent citizens of North Carolina, the House of Delegates of Maryland, and many private persons sent to Washington memorials, praying for a small expedition that should chart the sealing and whaling regions of the South, make known new opportunities for trade, discover new lands, and add to the glory of the United States.

Congress responded at once; not by sending out the expedition, but by asking naval authorities whether there really was need for it. Not until May 14, 1836, did it pass the bill, instructing the President to dispatch a sloop-of-

war and such other vessels as he might deem needful, appropriating $150,000 for expenses, and authorizing the Executive to make use of an equivalent amount, in addition, drawn from means under the control of the Navy Department. The intention was that this expedition should weigh anchor in the fall; but, unfortunately for this plan, the command was offered Captain Thomas ap Catesby Jones, and his acceptance involved a series of the most extraordinary contentions and delays that ever marred the success of a scientific enterprise.

For two years the preparation of the ships hitched along, while all concerned in equipping them wrangled, and the public laughed. Only the merest outline of the matter can be given here, but whosoever desires to spend an entertaining day over interesting literature, is recommended to the letters that appeared in 1837 and 1838 in the "New York Courier," the "Army and Navy Chronicle and Scientific Repository," and particularly in a certain report, No. 147, among the executive documents of the Twenty-fifth Congress. This document consists mainly of letters. There were giant letter-writers in those days, and naval officers aired their grievances in public with an elaborateness of diction as well as a freedom of speech that is surprising to the reader in this epoch of reserve.

Captain ap Catesby Jones was a particularly fine navigator of the pen. His letters are full of flowing periods. They are also full of italics. In his time, italics were not quite out of fashion, and his underscoring may have appeared natural; nowadays his letters seem fairly to scream. Captain Jones was apparently a fine type of the old time sea-dog; an honest, peppery, narrow, headstrong man, with the dignity of the United States Navy, and of the office of post-captain therein heavy upon him; and to his sense of the consideration due to his rank are to be attributed many of the delays in the equipment.

The first delay arose from his conception of the scope of the expedition, which was grander than the conception of Congress. Instead of a sloop-of-war, a brig, and a schooner, he requested a second-class frigate, two barques or brigs, a store-ship and a schooner. The administration fell in with his plans, but the vessels were not at hand;

they would have to be built. Nor was the appropriation large enough to provide a fleet that would cost, in a three years' voyage, more than a million dollars. Congress had adjourned. Additional funds could not be procured until it should meet the next year.

The Secretary of the Navy, however, decided to take chances that an *ex post facto* appropriation would be made, and authorized Captain Jones to go ahead upon the new plan. Organization began briskly. The "Macedonian," the third frigate of that name, was upon the stocks, almost finished. Work on her was hastened. A store-ship also was on the stocks, and the construction of the other vessels was ordered. The Secretary of the Navy wrote to colleges and scientific institutions, requesting advice as to the number and character of observers that would be desirable. Lieutenant Charles Wilkes was sent abroad to buy scientific instruments. Captain Jones set to work recruiting his six hundred and three men. At this epoch the navy was sending out two other fleets, and seamen were hard to find; but Captain Jones promised that if he should be permitted to enlist crews himself, he would soon fill out the complement, and, though this was irregular, the captain was allowed to have his own way. President Jackson had expressed particular interest in the enterprise, and the Secretary of the Navy was not disposed to strain at matters of form, if only the equipment could be pushed.

The Secretary of the Navy was Hon. Mahlon Dickerson of New Jersey. His portrait in the National Gallery is one of those over which the reader pauses for a second glance. The forehead and eyes suggest a certain power of discrimination; the compressed mouth shows self-control, and a curl of the lips indicates a dry sense of humor. The Hon. Mahlon Dickerson must have needed all these qualities. For not alone did he have to deal with the endless matters that legitimately arose in connection with the equipment—offers (at government prices) of supplies from voters who had supported the Democratic party, and looked for recognition; applications for billets with the scientific staff, including a few from the supporters of Mr. Shegogue, who desired to be appointed official portrait painter and draftsman to the expedition; protests from

Captain Fanning and other seafaring men that Captain Jones's barques were being constructed upon absurd models—not only did he have these letters to answer, but he had also to deal with the humors of the commander of the expedition.

The first of these humors was a source of some delay, and a great deal of public gossip. It was developed in the last month of 1836, when the vessels had been launched, and were waiting for their complement—enlistment, alas, was not proceeding as rapidly as Captain Jones had hoped. The officers were yet to be named. From the beginning, before Captain Jones himself had been put in command, Mr. Dickerson had intended that Lieutenant Alexander Slidell, the well-known author of the "Life of Decatur" and of other works, should have a vessel, and should write the history of the enterprise; and that Lieutenant Charles Wilkes, who had made excellent astronomical observations, should have another vessel. Slidell afterwards changed his name to Mackenzie, and to-day is better known as the commander of the Somers during the mutiny than as a writer. Mr. Dickerson had consulted these officers upon the subject, and of course rumors of his intention had got abroad; and perhaps this is a good place to note that every word of news concerning this expedition did get abroad.

The rumor came to the ears of Captain Jones, and apparently excited him greatly, for his letters came thick and fast. He began with criticisms of Slidell and Wilkes, as "inferior officers," but presently betrayed his inner thought. Slidell had been consulted with regard to the plans of the expedition "*while all was silence*," exclaimed Captain Jones, "*towards me.* What," he went on to ask, "What ought to have been my mortification to find myself called as a commander, to carry into effect the plans or views of my juniors, who are to hold *conspicuous stations nominally* under me, who if they are mortal men will surely view me as a *rival. One of them is to be historian* by authority, to give *his own version of my acts and doings!* If belles-lettres attainments are *paramount to all other qualifications in Commanders* for the *Exploring Expedition*, why not draw on the nation's best resources in that line? Why pass by Irving, Cooper, Paulding?"

Mr. Dickerson contented himself with pointing out that none of these gentlemen had asked for the job. Meanwhile, Lieutenant Slidell was protesting that the affair put him in a very mortifying position, for he had told all of his friends that he was sure of an appointment. He asked for the charges against him, and the Secretary of the Navy gave him several of Captain Jones's letters, with permission to publish them in the public press, and to reply to them. The affair caused a great stir. Slidell's many friends supported him eagerly. Washington Irving wrote to the President, urging that his gifted young acquaintance should be appointed. The President himself officially recommended Wilkes and Slidell for commands. In spite of all the opposition, Captain Jones had his way. The Secretary of the Navy, seeing that no harmony could exist between the commander and these subordinates, declined to appoint Wilkes and Slidell, and, as he said rather pettishly, "from this time forth ceased to look out for officers of scientific attainments for the expedition."

This little scandal had the serious effect of making naval officers shy of the expedition, and in the succeeding spring occurred a second public squabble which enhanced their shyness. The parties to this affair were Captain Jones and Lieutenant Tattnall, an officer who had been expressly chosen by the captain to command the barque "Pioneer."

In January, 1837, Lieutenant Tattnall took his vessel to Mexico for a trial cruise. When he returned, on March 30, Captain Jones was paying a visit to another vessel, and during the absence of his superior, the commander of the "Pioneer" let out sad stories of his craft. She pitched in a seaway—even in a tide-up—so violently as to "endanger her masts," and so to deaden her way as to cause her to drift bodily to leeward." In those eighty days she had pitched out of her three jib-booms, a foretopgallantmast, and a mizzentopmast. Moreover, Lieutenant Tattnall was not confident that in a double-reefed topsail breeze she could claw off a lee shore.

This news greeted Captain Jones at the landing. "Great God," exclaimed an excited relative, "What an account they give of the 'Pioneer!'"

It must have hurt the captain sorely, for the barques had been constructed under his own supervision and according to his own idea, amid impertinent criticisms from the merchant marine. He was not a man tamely to admit that his vessel could be clumsy. He called for Lieutenant Tattnall's official report, which confirmed the rumors; but instead of accepting it, he grimly hustled his brood of ducklings to sea. He kept them there eight days, during which time the weather was pleasant, and returned with the report that the vessels were good vessels, and that he had never seen a craft better able to claw off a lee shore than the "Pioneer." He caused this report to be published in the papers. Before he went to sea, he had talked over the matter with the Rev. Walter Colton, whom he had recommended for appointment as chaplain of the expedition. The interview occurred in a public place, and Lieutenant Tattnall heard of it. Tattnall was a sensitive man, and, as well as Captain Jones, had noble phrases at his command. He wrote to his commander as follows:

"I learn now, with astonishment and mortification, that you have openly expressed opinions in regard to the 'Pioneer' at direct variance with mine, in respect to facts, so much indeed as to make it hazardous to my reputation to retain the command of a vessel which you deem so highly as to have openly declared that you would sooner be in her in a lee shore than in almost any vessel you know, and of which my opinion is, that she could not in a trifling head sea, claw off a lee shore in a double-reefed topsail breeze. You, and the country, likewise, would of course expect service to be performed by me, which, if my opinion prove correct, I could not perform.

"That this experimental cruise was made in consequence of opinions expressed by me is universally known to the navy, as it is also to every citizen in this borough. Why, sir (I respectfully, but in a mortified spirit, ask you), why, if your judgment had detected and condemned the policy of mine, was it thought necessary to blazon it through the land, so as to make my position, already painful, more so?

"I am thus rebuked through the public prints, while at the same time I am deprived of the privilege (as this is

a professional matter) of reiterating and vindicating my opinions. That any intention existed of wounding my feelings by this publication, I most perfectly disbelieve, but I cannot help thinking that at least a thoughtlessness and indifference has been shown by it towards me and my position, which is humiliating.

"On all sides, surprise is expressed to me, both by officers and citizens, that such a publication should have been made, and there seems to be but one opinion (as far as I can learn) of the dilemma in which it places me, and the duty which it enjoins upon me.

"I learn also, with great regret, that, previous to your experimental cruise, at the public table of a hotel of this city, on an occasion when you were taking a glass of wine with Chaplain Colton, that clergyman had the impertinence and little self-respect to remark of me to you, that I was 'hyp'd in regard to my vessel, and that instead of rebuking him, you replied to this effect, 'Yes, he is very much prejudiced.'"

So Lieutenant Tattnall resigned. Everyone in the navy, and indeed most persons out of it, knew the details of this affair; and the difficulty of obtaining officers increased. Before the end of 1837, twenty-three officers of various ranks—among them David P. Porter, passed midshipman—had declined to go with the expedition. The gossip was increased when, instead of taking his vessels to the South, Captain Jones ordered them back upon the stocks, for alteration. At this period the delays of the enterprise were still matters of public disapproval; they had not reached the humorous stage. The people expected the expedition to get under way at any time.

Nevertheless, during the summer of 1837 but little was accomplished. The eighteen members of the scientific corps were put on salaries and the seamen were recruited. A board of commodores examined the vessels, and reported that with alterations they would do, but recommended that the complement should be reduced. At this, however, Captain Jones protested, and again had his own way. He discovered that the schooner was unfit for the work, and upon authorization from Mr. Dickerson, bought another for $8000, and spent as much more in fitting her up.

When the ships were reported ready for sea, a new cause of delay arose. The cooking galleys which had been purchased at Captain Jones's request turned out failures. He demanded new galleys that would burn anthracite coal, and more than a month passed before these were finished.

At last, on September 26, Mr. Dickerson ordered Captain Jones to sail as soon as he was ready. On October 12, he did sail—to New York, where supplies were to be taken aboard. The scientific corps reported to Captain Jones for consultation about instruments, furniture, etc., and the necessary stowage room for them. On November 10, new sailing orders were given to Captain Jones, but the vessels still needed repairs. During this new period of inaction, discontent arose among the crews. For many of the men, the time of enlistment had expired; and they were not eager to rejoin. Captain Jones recommended that they should be transferred to the regular service, whereby each man who should reënlist would receive a bounty of fifty dollars. This plan filled out the complement; but one night a hundred and fifty men, who were on shore leave, deserted, and that caused another delay.

It was a time of discouragement for Captain Jones. Moreover, he was at odds with everyone. The delay and the wrangling had tried the tempers of all concerned. Everyone was ready to take offense, and Captain Jones, who was not only harassed but also actually ill with an affection of the lungs, was ready to give up the whole enterprise. He insinuated—at least a letter of his was interpreted as an insinuation—that Lieutenant Wilkes was keeping back from the expedition some of the instruments he had bought. He wrangled again with the Secretary of the Navy. Even the Rev. Walter Colton, for whose appointment Jones himself had asked, proved false. He was ready to take the position of historiographer. Captain Jones protested. "It is true," he wrote, "that the varied scenes of wild nature which may fall under our observation would be the finest sources for the vivid imagination of a Scott, a Byron, an Irving or a Cooper, from which to draw sketches or tales of romance for the gay and light reader, but of little value to the philosopher or the naturalist.

The scientific corps would never submit to having their work sent to the world in the fancy dress of romance, or as light lore adapted only to the center-table or drawing-room lounge." But the protest was in vain. The appointment of the Rev. Walter Colton as historiographer was confirmed.

A routine order from Mr. Dickerson, to the effect that the commander of the expedition should summon two or more of his subordinates to "certify and before his face to seal up and then deliver into his hands all journals, reports, records, collections, etc., made by those under his command," exhausted the patience of Captain Jones.

"Since by the paragraphs alluded to," he wrote, "the Secretary of the Navy not only questions my *honor*, but impugns my *honesty*, only two courses are left; to abandon all pretense of self-respect or to resign."

He did resign, pleading ill health. Four other post-captains refused the command. The existence of the expedition was in peril. The country had upon its hands five ships, termed in the public press "old waddlers." They were imperfectly equipped, but the scientific corps, despite the consultation with Captain Jones, had provided for so many instruments that room for them aboard could not be found. It was the time when specie payments had been suspended, and money was hard to get. Claims of all kinds were coming to the Secretary of the Navy. Certain members of the scientific corps were complaining because their salaries did not run back to the dates of their appointments. The Rev. Walter Colton, too, requested back pay, because his preparation for the expedition had prevented the publication of his little work on the Lights and Shadows of Italy, for which he was to have received a thousand dollars.

The wits made fun of the enterprise in the papers, and a hard-headed member of the House of Representatives offered a resolution that the expedition should be abandoned, that a shed should be erected in the yard of the Secretary of the Navy, and that the members of the scientific corps should be quartered therein, and set to catching flies.

In this emergency, however, when the expedition seemed

lost, national pride was aroused, and the energy and self-abnegation of the naval officers, and the rapidity with which they pulled order out of this chaos, cannot sufficiently be admired. Lieutenant Wilkes was willing to undertake the command, and (so strong was the general feeling that for the national honor the expedition must not be allowed to fail) his superior officer, Lieutenant Hudson, consented to serve under him as commander of a vessel. The "old waddlers" were discarded, and a new fleet was formed of craft already in commission—the sloops-of-war "Vincennes" and "Porpoise," the brig "Peacock," and at the last moment, two pilot-boats purchased by the government in New York—the "Flying-Fish" and the "Sea-Gull." The scientific staff was cut down to six, and the extra instruments were put ashore. In the latter part of July, 1838, the President did credit to the expedition by visiting Wilkes on board the "Vincennes." On the 17th of August the ships sailed away.

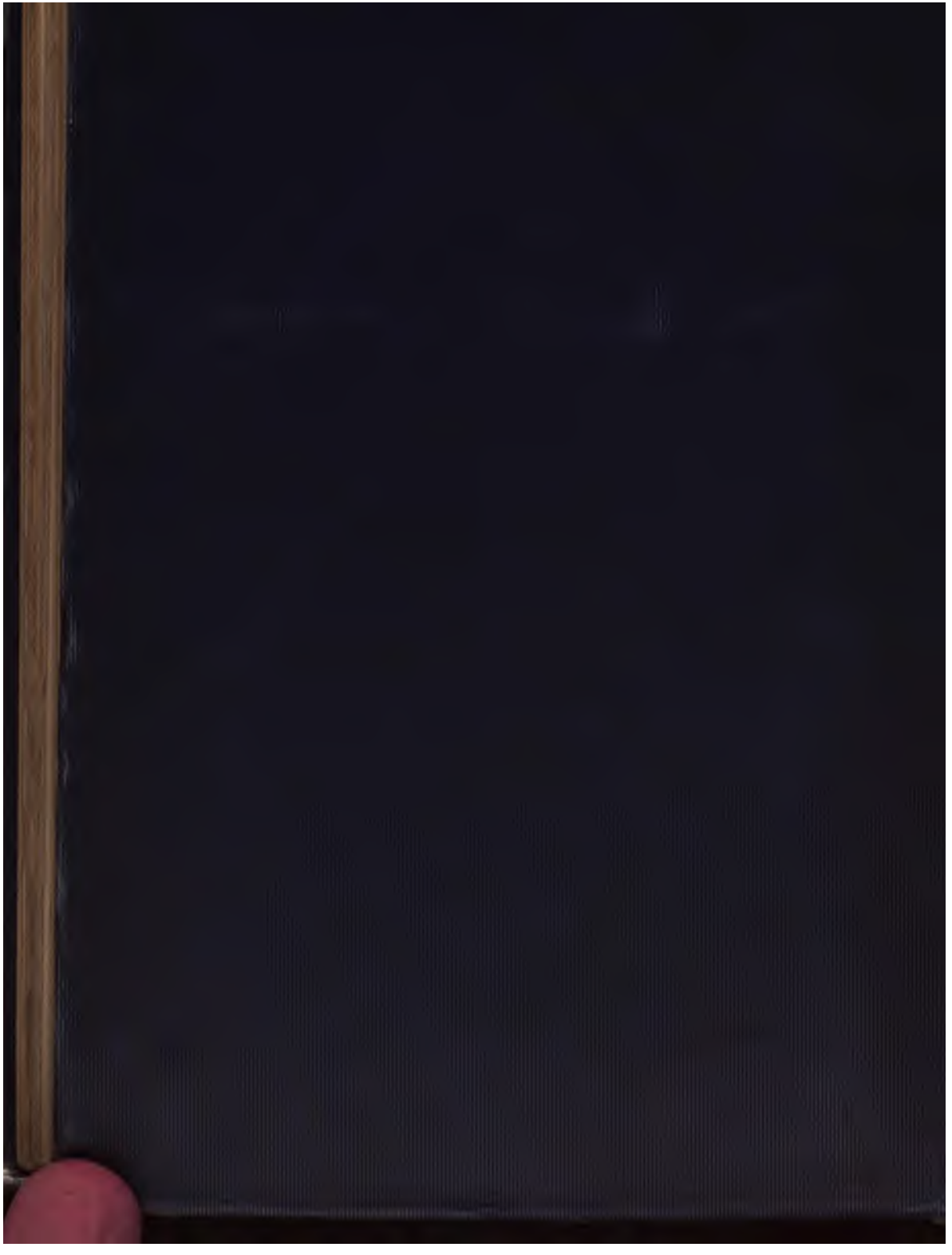
But the troubles of this unlucky enterprise were not yet over. Wilkes, who had been modest enough during the controversy over the command of the vessels, turned haughty at sea. Moreover, there was an unruly element in his crew. Friction between himself and his officers began early in the voyage, and continued to the end; and when the expedition was over, the commander was brought to court-martial under as entertaining a series of charges as ever appeared in a government document. One of the charges set forth that the commander assumed a dignity to which he was not entitled.

"He mounted the blue broad pennant on the 'Vincennes,'" says the charge, "after the manner of a captain commanding a squadron. He wore a coat with four buttons on each cuff, four buttons down each pocket fold, four buttons under each pocket flap." He also assumed two epaulets, instead of one, and thus arrogated to himself the insignia of captain. Another charge was oppression of his officers. He had refused to promote Assistant-surgeon Charles F. B. Gillou to the rank and pay of surgeon. At Honolulu, Gillou reminded him "in respectful terms" that he had joined the expedition under the expectation of an increase of salary, whereupon, in

the words of the charge, "the said Lieutenant Charles Wilkes did tell the said Assistant-surgeon Gillou, in a loud and angry tone, 'I deny the fact, I deny the fact, sir, positively. I never said any such thing,' at the same time rising from his chair and advancing toward the said Assistant-surgeon Gillou, shaking at him his finger and hand in an insulting manner;—the said Lieutenant Charles Wilkes, having approached the said Assistant-surgeon Gillou, and continuing his violent gesticulation, the said Lieutenant Charles Wilkes exclaimed in a threatening tone, 'Leave the presence, sir! Leave the presence!'" The assistant-surgeon left the presence, and Wilkes climbed to an upper piazza and shouted to his officer, ordering him to return to his ship, at the same time "threatening him with his finger in this public place in a foreign land." To this indignity Wilkes added the exasperation of a refusal to forward to the Secretary of the Navy, Assistant-surgeon Gillou's report of the interview.

Another charge was cruelty to the natives in the Pacific seas. On the Island of Malolo the inhabitants had killed a certain Lieutenant Underwood, and Wilkes had retaliated by storming the principal town. The charge cites the fact that natives were put to death, and goes on to state that "after a large deputation from the reduced inhabitants of the aforesaid Island of Malolo had, crouching down before the said Lieutenant Charles Wilkes, crawled upon their elbows and knees toward his feet, and groaned forth their repentant submission, grappling up the earth and throwing it on their heads and shoulders, the aforesaid Lieutenant Charles Wilkes did order them to bring or drive down their hogs to supply the brig "Porpoise," and to carry water to fill the tanks of said vessel, and to yield up to him arms and other property, thereby leaving them, with their wives and children, exposed to the murderous hate and anthropophagian appetites of their cannibal neighbors."

Wilkes replied to the charge of cruelty by pointing out that if he were to be tried at all for shooting natives, he must be tried for murder; he could not be accused of a lesser crime. The court-martial reprimanded him, however, for cruelty to his men; he had caused twenty-five of

them to be given twenty-four lashes apiece, during the three years.

So the expedition ended as it had begun—in a public scandal. Its bright deeds have outlived most of the scandal. It restrained, somewhat, the anthrophagian tendency in the South Seas, at least in so far as that tendency was directed toward the American missionary, and in those days the risk of being eaten incurred by missionaries in that region was something more than a comic-paper joke. It accomplished valuable scientific works, the results of which were finally published by the Government, the draftsmen brought home the South Seas races, in a series of plates, which are to-day interesting, if somewhat quaint. The collections of the horticulturist and the botanist furnished materials for a work by Asa Grey. The philologist produced a book on Ethnography. The conchologist wrote on Zoöphytes. The charts of the hydrographers are, even now, the standards for many harbors in the Pacific. But on their Antarctic charts, running around the Antarctic circle, between the ninetieth and the one hundred and sixty-fifth degrees of east longitude, there is a wavy line called Wilkes Land. It is laid down upon the maps of all nations, but upon the official charts of one nation—England—it appears only by courtesy, and recent addresses upon Antarctic discovery, delivered by the most eminent English geographers, include statements to the effect that Wilkes's reports of an Antarctic continent need to be verified. It is hardly necessary to present here the reasons for this incredulity. They are set forth in Wilkes's narrative of the expedition in five volumes. The main contention of these geographers is that the commander of the English expedition which followed Wilkes into the Antarctic regions, Captain James Clarke Ross, sailed over a point where Wilkes had indicated land upon his chart. At that point no land was visible; what proof is there, ask the geographers, that the rest of the chart is reliable? There is, moreover, something beside the absence of that particular coast to serve as a pretext for doubt. One of the charges in the court-martial of Wilkes—a charge entitled "Scandalous Conduct Tending to the Destruction of Good Morals"—cited that "the said Lieutenant Charles Wilkes